THE IAS GAZETTE

A House Journal of **APTI PLUS**

JUNE 2021

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37 TH EDITION

LAKSHADWEEP DRAFT LAWS

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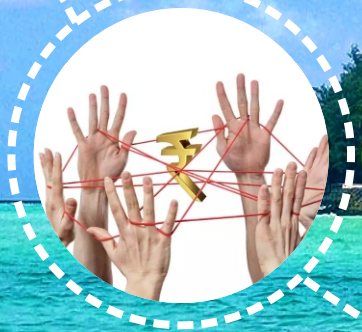
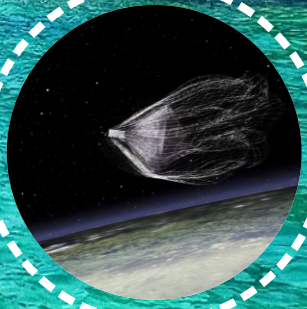


SOCIAL STOCK EXCHANGES



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(NITI Aayog, Budget, WEF
Economic Survey etc.)
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All standard reference books

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Disclaimer:
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Arise, awake and stop not till the goal is reached.
- Swami Vivekananda

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UNESCO WORLD HERITAGE SITES

GS-I CULTURE & HERITAGE

Context

- Six cultural heritage sites have been added to the **tentative list** of UNESCO World Heritage Sites.

The six sites

The following six places have successfully entered the **tentative list of UNESCO World Heritage sites.**

1. Ganga Ghats of Varanasi
2. Temples of Kancheepuram in Tamil Nadu
3. Satpura Tiger Reserve in Madhya Pradesh
4. Maharashtra Military Architecture
5. Hire Benkal Megalithic site
6. Bhedaghat Lametaghat of Narmada Valley in Madhya Pradesh

With this, the total number of sites in the UNESCO World Heritage Sites Tentative list has increased to 48.

India and International Heritage Sites

- India is home to **38 UNESCO World Heritage Sites,** out of the 1121 such spots identified around the world.
- Of these, 30 are 'cultural', and 7 are 'Natural'. One is classified as 'Mixed'.
- So far, only China, Italy, Spain, Germany, and France have more locations on the list than India.

Full list of UNESCO World Heritage Sites in India

Cultural (30)

1. Agra Fort
2. Ajanta Caves
3. Archaeological Site of Nalanda Mahavihara at Nalanda, Bihar
4. Buddhist Monuments at Sanchi
5. Champaner-Pavagadh Archaeological Park
6. Chhatrapati Shivaji Terminus (formerly Victoria Terminus)
7. Churches and Convents of Goa
8. Elephanta Caves
9. Ellora Caves
10. Fatehpur Sikri
11. Great Living Chola Temples
12. Group of Monuments at Hampi
13. Group of Monuments at Mahabalipuram
14. Group of Monuments at Pattadakal
15. Hill Forts of Rajasthan
16. Historic City of Ahmadabad
17. Humayun's Tomb, Delhi
18. Jaipur City, Rajasthan
19. Khajuraho Group of Monuments
20. Mahabodhi Temple Complex at Bodh Gaya
21. Mountain Railways of India
22. Qutub Minar and its Monuments, Delhi
23. Rani-ki-Vav (the Queen's Stepwell) at Patan, Gujarat
24. Red Fort Complex
25. Rock Shelters of Bhimbetka
26. Sun Temple, Konârak
27. Taj Mahal
28. The Architectural Work of Le Corbusier, an Outstanding Contribution to the Modern Movement
29. The Jantar Mantar, Jaipur
30. Victorian Gothic and Art Deco Ensembles of Mumbai

Natural (7)

1. Great Himalayan National Park Conservation Area
2. Kaziranga National Park
3. Keoladeo National Park
4. Manas Wildlife Sanctuary
5. Nanda Devi and Valley of Flowers National Parks
6. Sundarbans National Park
7. Western Ghats

Mixed (1)

Khangchendzonga National Park

More about the six sites

Ganga Ghat, Vranasi, UP

- Ghats in Varanasi are riverfront steps leading to the banks of the River Ganges. The city has **88 ghats.**
- Most ghats were rebuilt in the 18th century, when the city came **under Maratha rule.**

Bhedaghat-Lametaghat in Narmada Valley- Jabalpur, MP

- Referred to as the **Grand Canyon of India.**
- It is **known for its marble rocks** and their various morphological forms
- Several **dinosaur fossils have been found** in this region.
- River Narmada narrows down on its way through marble rocks and plunges in a waterfall.

Satpura Tiger Reserve

- Located in the **south of the river Narmada.**
- The Tiger Reserve is a part of Satpura National Park which includes **Pachmarhi & Bori Sanctuaries as well.**
- Derived its name from the Satpura Range (seven mountains).
- The range was first explored by Captain James Forsyth of Bengal Lancers in 1862 while he was searching for Indian Freedom Fighter Tantya Tope.
- It has **Dhoopgarh peak (1352 mts)** - highest point in the Mahadeo Hills (Satpura Range).
- **Flora and Fauna:** Indian Skimmer, Black Bellied Tern, Leaf-nosed Bat, Leopard, **Sambar, Chital, Indian Muntjac,** Nilgai, Four-Horned Antelope, Chinkara, Wild Boar, Bear, **Black Buck,** Flying Squirrel, Mouse Deer, **Indian Giant Squirrel,** Tigers, Dholes, **Indian Gaur And Barasingha**, Peafowl, Malabar Pied Hornbill, Madhya Pradesh's state bird Paradise **Flycatcher (Doodhraj).** The Flora Consists Of Mainly Sal, Teak, Tendu, Phyllanthus Emblica, Mahua, Bel, Bamboo, And Grasses And Medicinal Plants.
- **Other National Parks in MP:**
  - ✓ Bandhavgarh National Park,
  - ✓ Fossil National Park,
  - ✓ Kanha National Park,
  - ✓ Madhav National Park,
  - ✓ Panna National Park,
  - ✓ Pench (Priyadarshini) National Park,
  - ✓ Sanjay National Park,
  - ✓ Van Vihar National Park,
  - ✓ Dinosaur National Park

Maharashtra Military Architecture

- There are more than five hundred forts of various hybrid eras in Maharashtra built between 1500 and 1800.

Hire Benakal Megalithic Site

- Located in Karnataka. Dates back to 800 BCE to 200 BCE.
- It is the largest necropolis among the 2000 odd megalithic sites found in South India.
- Under the management of the Archaeological Survey of India (ASI) **within the Dharwad circle.**

Temples of Kanchipuram, Tamil Nadu

- Kanchipuram served as the **capital city of the Pallava Kingdom.**

- Ruled by the Pallavas, the Cholas, the Later Pandyas, the Vijayanagara Empire, the Carnatic kingdom.
- It is also known as **"The City of Thousand Temples"**
- **Some notable Temples:** Varadharaja Perumal Temple for Vishnu, Ekambaranatha Temple of Shiva. Kamakshi Amman Temple, Kumara Kottam, Kachapeshwarar Temple, and the Kailasanathar Temple.

Note: Read about the Importance of Preserving Heritage Sites in the previous edition.

PUPPETRY

GS-I CULTURE & HERITAGE

Context

- In collaboration with UNICEF-Assam, the Anamika Ray Memorial Trust (ARMT) has produced short videos using string puppetry for creating mass awareness on COVID appropriate behaviour.

Puppetry

- Puppetry is an animated visual art form.
- The puppeteer uses his or her skills to make the puppet, an inanimate object, talk, sing, dance and behave the way humans do.
- It is considered to be one of the oldest forms of storytelling in the country.

Types of Puppetry

There are four types of puppetry which are discussed below:

1. String Puppets
2. Shadow Puppets
3. Glove Puppets
4. Rod Puppets

Major Puppetry Traditions of Indian States

String Puppets
- Putul Nach – Assam
- Gombeyatta – Karnataka
- Kalasutri Bahulya – Maharashtra
- Gopalila Kundhei – Orissa
- Kathputli – Rajasthan
- Bommalattam – Tamil Nadu
- Kathputli – Rajasthan
- Tarer or Sutor Putul – West Bengal

Shadow Puppets
- Tholu Bommalata – Andhra Pradesh
- Togalu Gombeyata – Karnataka
- Tolpavakoothu – Kerala
- Chamadyache Bahulya – Maharashtra
- Ravanachhaya – Orissa
- Thol Bommalattam – Tamil Nadu

Rod Puppets
- Putul Nach – West Bengal
- Kathi Kandhe – Orissa
- Yampuri – Bihar

Glove Puppet

Oava Jytger – Kerala
PavaKoothu – Kerala
Kandei Nach- Odisha
Bener Putul- West Bengal

Origin of Puppetry

- Earliest reference to the art of puppetry is found in Tamil classic **'Silappadikaaram'** written around the 1st or 2nd century B.C.
- **Natyashastra,** does not mention puppetry. But it does mention "Sutradhar"- meaning the holder of strings.
- Prominently, Puppets came into being in India, **under the rulers of the Vijayanagar Empire**, in 3rd Century A.D.
- It was honed into a theatrical art in Andhra Pradesh. It helped to propagate the works of saints and religious leaders, and also depict stories from the Hindu epics.
- Later, it spread to South East Asia.

Why is Puppetry dying out in India?

- Lack of devoted audience and financial security.

- Lack of patronage and neglect by government, non-governmental organizations, rich and influential people.
- Slow and tedious dispensation of government grants.
- **Lack of funds and platforms.**
- **Modern day entertainment options** like television, movies and the internet are pushing traditional puppetry towards a slow death.
- **Declining interest among the younger generation** of artiste families because of the poor remuneration it offers.
- Most puppeteers are village-based, poorly educated, and hence **lacking in marketing skills.**
- Lack of upgradation of puppeteers' skills to compete with other forms of popular entertainment in the 21st century.
- Lack of research in puppetry. Iran has three universities dedicated to puppetry and in India we don't even have as many specialized courses, let alone a university.
- Lack of knowledge and language limitation of traditional puppeteers.
- Rising number of individuals who pursue puppetry solely as a passion, while earning their livelihoods from regular jobs.

Silver lining

- **Diversification:** Puppeteers are themselves learning to branch out into related art forms, or innovate in some way to keep their craft and their incomes alive.
  For example, **Andhra Pradesh'sNimmalakunta puppeteers** are now using the same puppet-making skills to make other leather products like lampshades, door decorations and more to supplement their income.
  In **Rajasthan,** puppets are sold widely as decorative items and are quite popular with tourists.
- **Modernization:** Puppeteers are learning to narrate modern stories and enact political or social satire-filled dramas to attract audiences.
  Important social messages like the education of the girl child and the importance of health and sanitation are also delivered to keep in step with modern tastes and also attract sponsorship from organizations promoting these causes.
- **Government efforts:** The central government sponsors puppetry workshops and has a few schemes to promote puppetry through education programmes and hold puppetry festivals and seminars too.
  Some state governments are also waking up to the problem. For example, the Karnataka Government is showcasing its puppetry traditions in folk art fairs and cultural festivals, especially in Bengaluru.

Conclusion and Way Ahead

- All the above mentioned efforts are just not adequate.
- Much more needs to be done on a nationwide scale to keep this tradition flourishing and ensure financial security for the artists.
- Unless they receive financial help from the government, the chance of their survival is bleak.
- Other steps that can be taken to revive the art are:
  - ✔ improvements in training and infrastructure
  - ✔ raising awareness amongst the general public by cultural media, institutions and industries
  - ✔ Puppetry can be used for effective communication with farmers on issues relating to agriculture.
  - ✔ Courses on Puppetry for skill upgradation. Dedicated Institutions for the artform.
  - ✔ Use of puppetry in education and therapy.
  - ✔ Narration of modern stories including humorous ones and fun-filled fables.
  - ✔ Enacting political or social satire-filled dramas to attract audiences.
  - ✔ Investing in the Research and Development of puppetry to increase its demand in the market by further modernization.
  - ✔ Internationalization of the artform through dedicated platforms.

CYCLONE 'TAUKTAE' AND 'YAAS'

Context

- Cyclone 'Tauktae' left behind a trail of destruction in Gujarat and Maharashtra.
- Cyclone Yaas made landfall south of Balasore in Odisha.

About

- Tauktae is a tropical cyclone, termed as **'Extreme Severe Cyclonic Storm' (ESCS) and 'Very Severe Cyclonic Storm' (VSCS).**
- **Myanmar** has named this cyclone 'Tauktae'.
- **Yaas** has been classified as a very severe cyclone.
- **Oman** has named the Cyclone 'Yaas'.

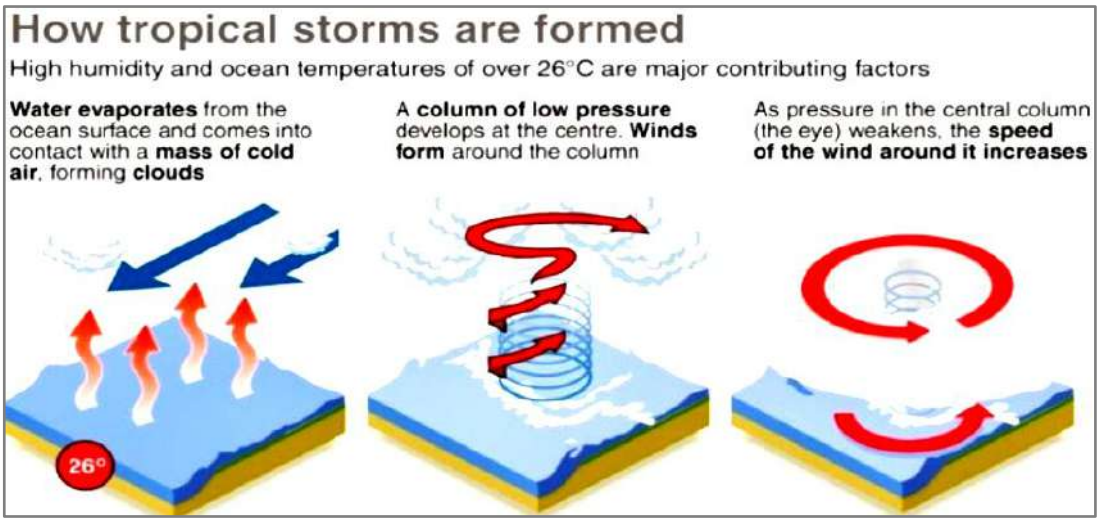
Tropical Cyclones

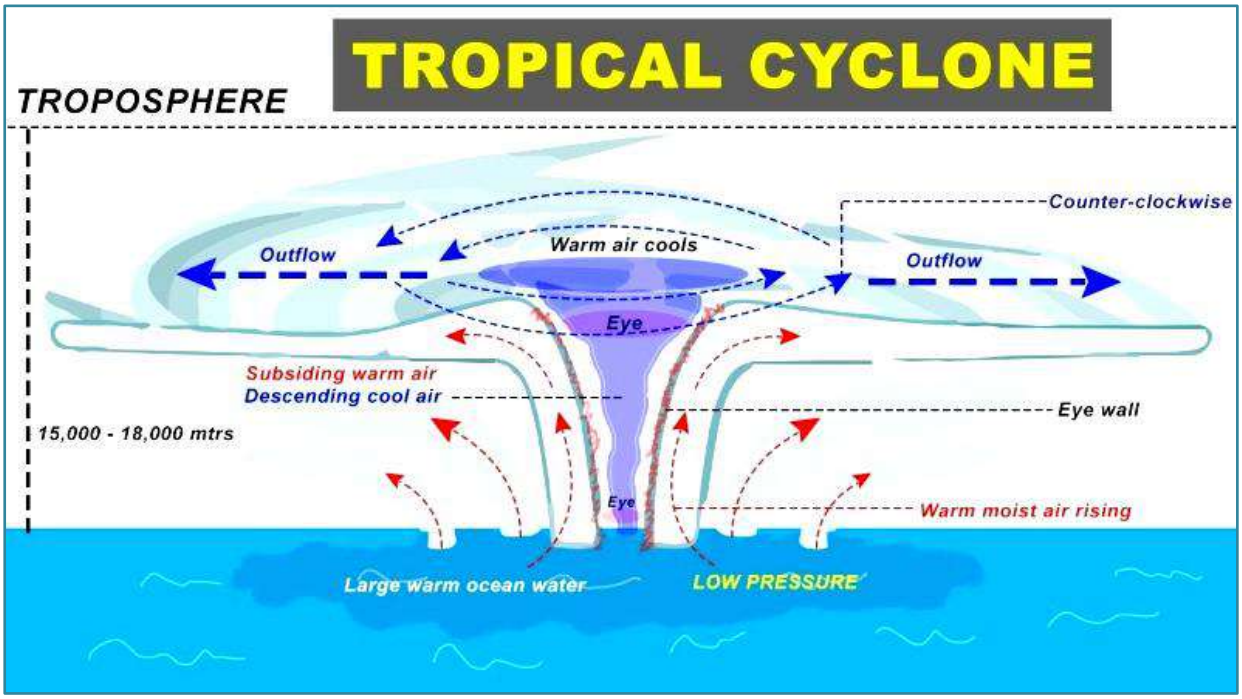
- Tropical cyclones develop in tropical oceans at least **5° - 30° latitude north or south of the equator.**
- They rotate **counterclockwise in the northern hemisphere and clockwise in the southern hemisphere**.
- Tropical Cyclones have different names in different regions:
  - Hurricanes in the North Atlantic and eastern Pacific
  - Typhoons in southeast Asia and China.
  - Cyclones in the southwest Pacific and Indian Ocean region and
  - Willy-willies in north-western Australia.

Favorable conditions for development of Tropical Cyclones

- Large sea surface with temperature **higher than 27° C,**
- Converging winds near the ocean surface forcing air to rise and form storm clouds.
- Winds that do not vary greatly with height - known as **low wind shear.** This allows the storm clouds to rise vertically to high levels;
- Sufficient distance from the equator for a spin such as the **Coriolis force** to take effect.
- Small variations in the vertical wind speed
- A pre-existing **weak low-pressure area** or low-level-cyclonic circulation
- **Upper divergence** above the sea level system

Category	Sustained Winds (3-min average)
Super Cyclonic Storm	≥120 kt ≥221 km/h
Extremely Severe Cyclonic Storm	90–119 kt 166–220 km/h
Very Severe Cyclonic Storm	64–89 kt 118–165 km/h
Severe Cyclonic Storm	48–63 kt 89–117 km/h
Cyclonic Storm	34–47 kt 63–88 km/h
Deep Depression	28–33 kt 51–62 km/h
Depression	17–27 kt 31–50 km/h


How tropical storms are formed
High humidity and ocean temperatures of over 26°C are major contributing factors
Water evaporates from the ocean surface and comes into contact with a mass of cold air, forming clouds
A column of low pressure develops at the centre. Winds form around the column
As pressure in the central column (the eye) weakens, the speed of the wind around it increases
26°



Why is the Arabian Sea turning into a cyclone hotspot?

- **Rising sea surface temperatures (SST) in the Arabian Sea** are contributing to the formation of an increased number of cyclones.
- According to the India Meteorological Department, the frequency and intensity of cyclonic activity in the Arabian Sea was the **highest it had been in over a century, in 2019.**
- SST in the Arabian Sea rose by a staggering 0.36 degrees Celsius, compared with the baseline temperatures between 1981 and 2010.

The usual trend: India's east coast is a magnet for cyclones

- Among the cyclones that are formed in the Bay of Bengal, over **58 percent approach and cross the eastern coast.**
- Only 25 percent of the cyclones that develop over the Arabian Sea approach the western coast.

Reasons for higher cyclone in BOB in comparison to Arabian Sea

Surface sea temperatures and humidity are directly related to the formation of cyclones.

1. **Temperature:** BOB is hotter than Arabian Sea. Hot water temperature is the basic criteria for the development & intensification of cyclones. The average temperature in the Bay of Bengal around the year is high - about 28 degrees.
2. **Salinity:** Arabian Sea has higher salinity than BOB. It is easier for water to heat & simultaneously evaporate, which is having lower salinity.
3. **Location:** The typhoons originating in the Pacific Ocean too influences the cyclones in BOB, not the case in Arabian sea.
4. **Movement:** According to IMD cyclones originating in Arabian sea move northwest. So they actually move away from Indian mainland.
5. **Rainfall:** Since, the Bay of Bengal receives high average rainfall, the possibility of cyclone formation is also high.
6. **Wind:** The winds over the Bay of Bengal are a lot more sluggish compared to the Arabian Sea. Therefore, the winds fail to reduce the surface temperature of the sea.
7. **Fresh water:** When the BOB receives fresh water from the Brahmaputra and other rivers, the surface temperature is replenished, resulting in the formations of Tropical Depression.

How are the cyclones named?

- If the speed of a cyclone is **more than 34 nautical miles per hour then it becomes necessary** to give it a special name.
- In 2000, a group of nations called WMO/ESCAP(World Meteorological Organisation/United Nations Economic and Social Commission for Asia and the Pacific), decided to start naming cyclones in the region.
- WMO/ESCAP comprises of **Bangladesh, India, the Maldives, Myanmar, Oman, Pakistan, Sri Lanka and Thailand, Iran, Qatar, Saudi Arabia, United Arab Emirates and Yemen.**
- All countries contribute a set of names, which are **assigned sequentially on the basis of the first Alphabet** of the member country. Till date, **64 cyclones have been named.**

Guidelines to adopt names of cyclones

The proposed name should be neutral to

(a) politics and political figures (b) religious believes,

(c) cultures and (d) gender

- Name should be chosen in such a way that it does not hurt the sentiments of any group of population over the globe
- It should not be very rude and cruel in nature
- It should be short, easy to pronounce and should not be offensive to any member
- The maximum length of the name should be eight letters
- The names of tropical cyclones over the north Indian Ocean will not be repeated. Once used, it will cease to be used again.
- Public can also suggest names.

WMO

- The World Meteorological Organization (WMO) is an intergovernmental organization with a membership of 193 Member States and Territories. It originated from the International Meteorological Organization (IMO), the roots of which were planted at the 1873 Vienna International Meteorological Congress. WMO is the specialized agency of the United Nations for meteorology (weather and climate), operational hydrology.

ESCAP

- The **United Nations Economic and Social Commission for Asia and the Pacific (ESCAP**) was established in order to increase economic activity in **Asia and the Far East,** as well as to foster economic relations between the region and other areas of the world. The Commission is composed of 53 Member States and nine Associate members, mostly from the Asia and Pacific regions.

INDIAN MONSOON

GS-I GEOGRAPHY

Context

- Indian monsoon 25 million years ago resembled present day Australia's – Study.

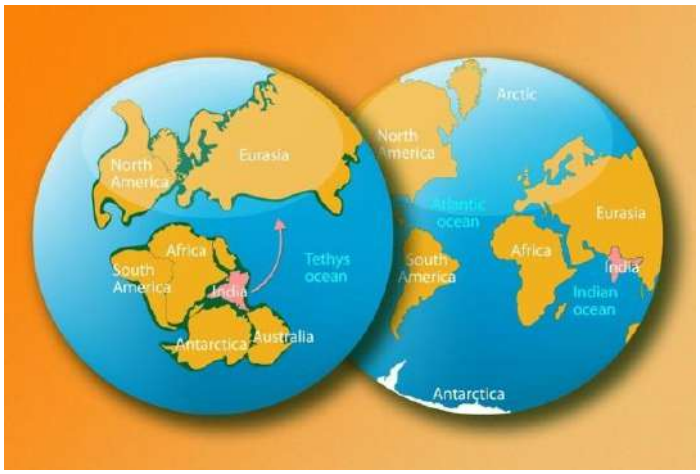
Highlights of the Study

- The morphological characters of fossil leaves from different geological ages collected from Deccan Volcanic Province, East Garo Hills of Meghalaya, **Gurha mine in Rajasthan** and **Makum Coalfield in Assam** were analysed.
- **Inference:**
  - the fossil leaves from India were adapted to an Australian type of monsoon and not the current Indian
  - Monsoon system.

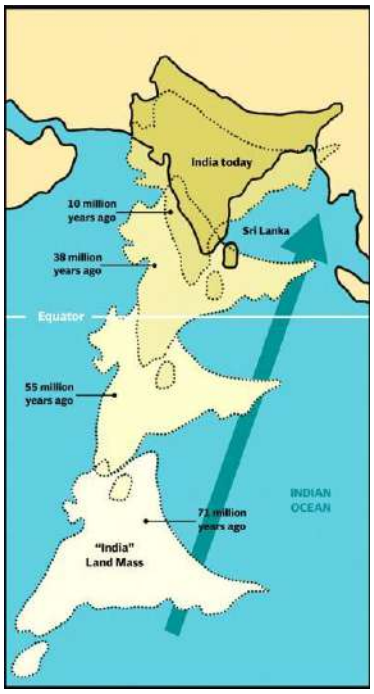
- Climate was warm (tropical to subtropical) at all the studied fossil sites with temperatures varying from 16.3–21.3 degrees C.
- All the fossil sites experienced high rainfall, which varied from 191.6 cm to 232 cm.

Why the Monsoon resemblance in the past but not today

The answer lies in India's tectonic journey



- More than 140 million years ago, India was part of an immense supercontinent called Gondwana, which covered much of the Southern Hemisphere.
- Around 120 million years ago, what is now India broke off and started slowly migrating north, at about 5 centimeters per year.
- Then, about 80 million years ago, the continent suddenly sped up, racing north at about 15 centimeters per year — about twice as fast as the fastest modern tectonic drift.
- The continent collided with Eurasia about 50 million years ago, giving rise to the Himalayas.
- Today, India is still moving in the same direction but with a lower velocity of about 4 cm/year, due to the resistance of the Eurasian plate.

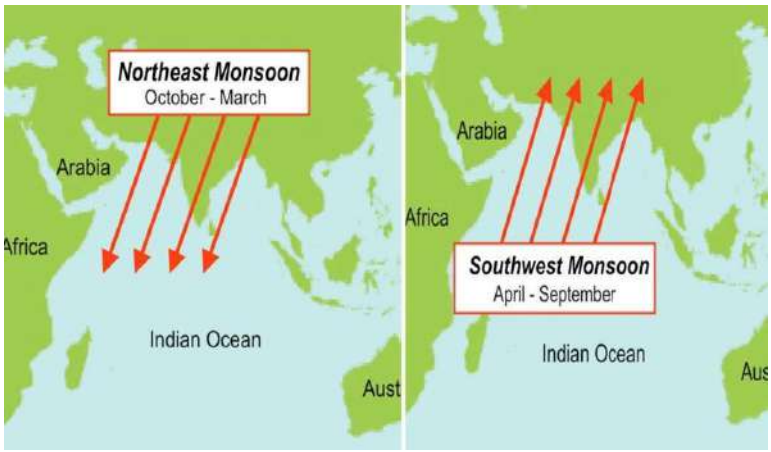


About Indian Monsoon

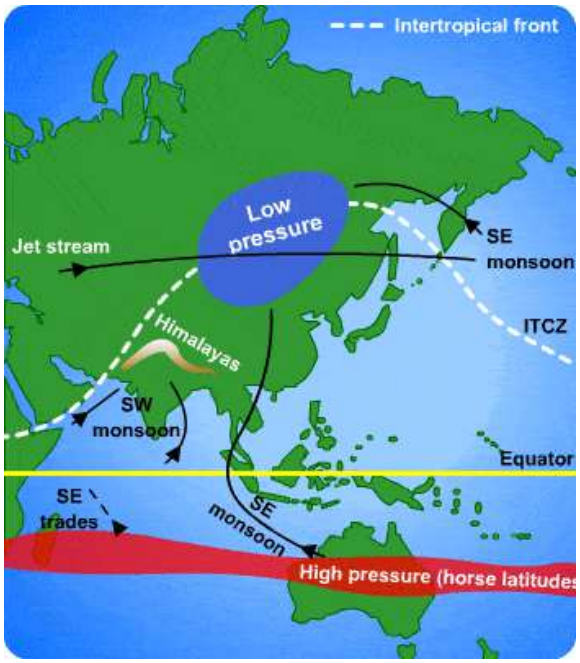
- A monsoon is traditionally a seasonal reversing wind accompanied by corresponding changes in precipitation.

Types of Indian Monsoon

- India actually has two monsoons -- the southwest monsoon and the northeast monsoon.



Mechanism of Monsoon in brief



- During the summer season as land gets heated up, the air rises and the low-pressure area is created on the land and on the other hand high-pressure area is created in the Indian Ocean.
- Air moves from high-pressure areas to low-pressure areas.
- The low-pressure land system attracts south-east trade winds but after crossing the equator **due to Coriolis force**, winds turn right towards the low-pressure areas over the Indian subcontinent.
- These winds start blowing in a south-westerly direction and enter the Indian peninsula as the southwest monsoon.
- As it reaches India monsoons are divided into two branches namely - Arabian Sea branch and Bay of Bengal branch.
- About **75 per cent of the country's annual rainfall** is received from the Southwest monsoon between June and September.
- Also called the winter monsoon, the rainfall associated with the Northeast monsoon is important for Tamil Nadu, Puducherry, Karaikal, Yanam, coastal Andhra Pradesh, Kerala, north interior Karnataka, Mahe and Lakshadweep. It occurs during October to December.

Factors influencing the onset of SW monsoons

- Intense low-pressure formation over the Tibetan Plateau
- The permanent high-pressure cell in the South of the Indian Ocean
- Subtropical jet stream: Westerly jet stream moves to the north of the Himalayas and the tropical easterly jet stream moves over the Indian peninsula during summer.
- African Easterly jet (Tropical easterly jet)
- Inter-Tropical Convergence Zone (ITCZ)
  - The Inter Tropical Convergence Zone, or ITCZ, is a belt of low pressure which circles the Earth generally near the equator where the trade winds of the Northern and Southern Hemispheres come together.
  - It is characterized by convective activity which generates often vigorous thunderstorms over large areas.
  - During summer ITCZ shifts over the Ganga plain. It is also known as the monsoon-trough.

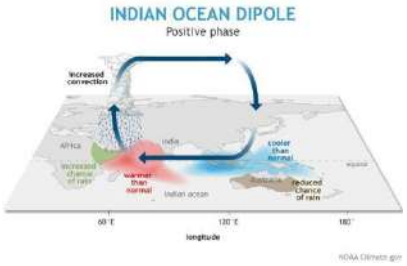
Factors influencing intensity of SW monsoons

- Strengths of the low pressure over Tibetan plateau and the high pressure over the south Indian Ocean
- Somali Jet
- Somali Current
- Indian Ocean dipole
- Indian Ocean branch of the Walker Cell (ENSO)
  - **El Nino:** El Nino during winter causes warm conditions over the Indian subcontinent and during summer, it leads to **dry and drought conditions** and deficient monsoon.
  - **La Nina:** La Nina results in **better than normal monsoon** in India.

The Indian Ocean Dipole

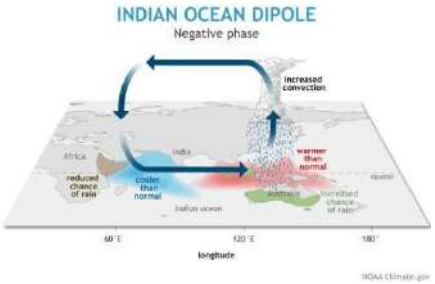
- The Indian Ocean Dipole (IOD), also known as the Indian Niño, is an irregular oscillation of sea surface temperatures in which the western Indian Ocean becomes alternately warmer (positive phase) and then colder (negative phase) than the eastern part of the ocean.

Positive event



- ✓ cooler than normal sea-surface temperatures in the eastern equatorial Indian Ocean and warmer than normal sea-surface temperatures in the western tropical Indian Ocean.
- ✓ brings good rains in India
- ✓ easterly wind anomalies across the Indian Ocean and less cloudiness to Australia's northwest
- ✓ less rainfall over southern Australia and the Top End.

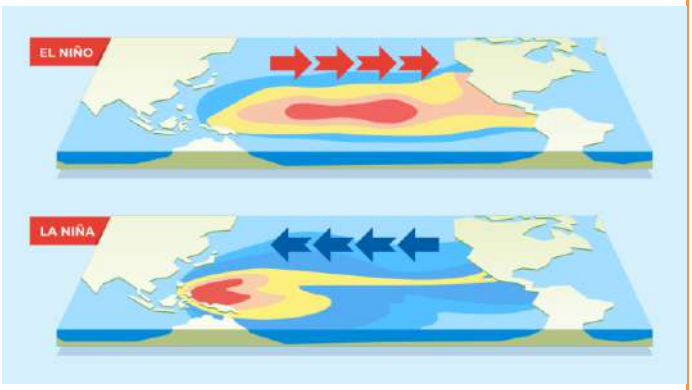
Negative event



- ✓ warmer than normal SSTs in the eastern equatorial Indian Ocean and cooler than normal SSTs in the western tropical Indian Ocean
- ✓ winds become more westerly, bringing increased cloudiness to Australia's northwest
- ✓ more rainfall in the Top End and southern Australia.
- ✓ cooler and drier conditions in the west i.e India

ENSO

- The ENSO is the cycle of warm and cold sea surface temperature (SST) of the tropical central and eastern Pacific Ocean.



La Nina

- La Nina is observed when the water temperature in the Eastern Pacific gets comparatively colder than normal, as a consequence of which, there is a strong high pressure over the eastern equatorial Pacific. The difference in pressure between Eastern Pacific and Western Pacific/Asia causes a moisture-laden wind movement from East to West Pacific and Asia.
- La Nina causes drought in the South American countries of Peru and Ecuador, heavy floods in Australia, high temperatures in Western Pacific, Indian Ocean, off the Somalian coast and a comparatively better monsoon rains in India.

El Nina

- El Niño is a climate pattern that describes the unusual warming of surface waters in the eastern tropical Pacific Ocean. It is accompanied by high air pressure in the western Pacific and low air pressure in the eastern Pacific. During winter, this leads to wetter conditions than usual in the Southern U.S. and warmer and drier conditions in the North.
- Generally, El Nino and La Nina occur every 4 -5 years. El Nino is more frequent than La Nina.

SHIFT IN EARTH'S AXIS

In News

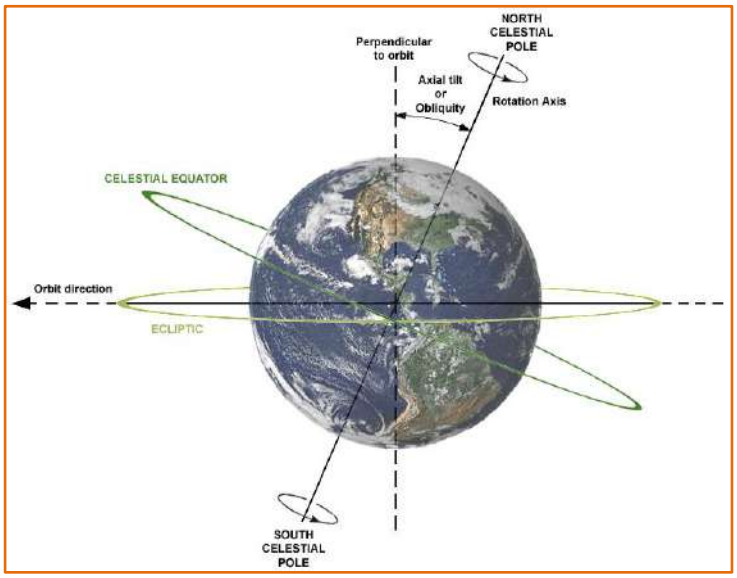
- A study published in Geophysical Research Letters of the American Geophysical Union (AGU) says that due to the significant melting of glaciers owing to global temperature rise, our planet's axis of rotation has been moving more than usual since the 1990s.

Immediate impact

- This change is not expected to affect daily life, but it can change the length of the day by a few milliseconds.

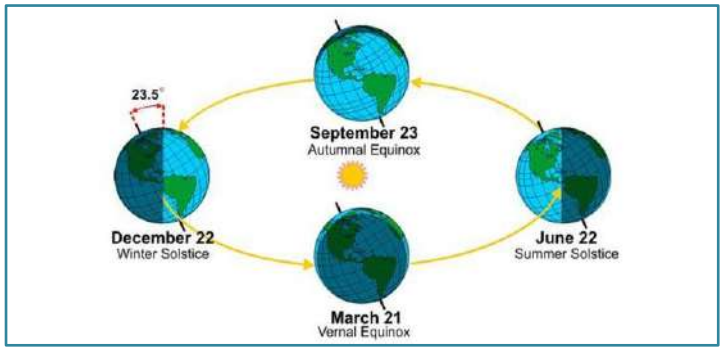
About Earth's Axis

- The Earth's axis of rotation is the line along which it spins around itself as it revolves around the Sun.
- Axial tilt, also known as obliquity, is the angle between an Earth's rotational axis and its orbital axis around the Sun.
- It differs from orbital inclination.
- Earth's obliquity oscillates between **22.1 and 24.5 degrees on a 41,000-year cycle.**
- At present the Earth's axis is tilted 23.5 degrees from the plane of its orbit around the sun. But this tilts changes.
- **Note:** We have **seasons because of Earth's axis**. The points on which the Earth's axis intersects the planet's surface are the geographical north and south poles.



Why the Earth's axis shifts

- Earth's axis shifts for a lot of reasons, **ranging from long-term changes in the heat-driven process of convection within the mantle to annual changes in ocean currents and winds.**



Impact on Poles

- The location of the North and South poles is not fixed.
- Thus, the poles move when the axis moves, and the movement is called **"polar motion".**

New Findings

- According to NASA, the spin axis **drifted about 10 centimetres per year in the 20th century.**
- Meaning over a century, polar motion exceeds 10 metres.
- Generally, polar motion is **caused by changes in the hydrosphere, atmosphere, oceans, or solid Earth.**
- But now, climate change is adding to the degree with which the poles wander.
- Since the 1990s, **climate change has caused billions of tonnes of glacial ice to melt into oceans. This has caused the Earth's poles to move in new directions.**

Data on Polar Shift

- The North Pole has shifted in a **new eastward direction since the 1990s**, because of changes in the hydrosphere (meaning the way in which water is stored on Earth).
- From 1995 to 2020, the average speed of drift was 17 times faster than from 1981 to 1995.
- Also, in the last four decades, the **poles moved by about 4 metres in distance.**
- The faster ice melting under global warming was the most likely cause of the directional change of the polar drift in the 1990s.
- **Other possible causes are**
  - ✓ terrestrial water storage change in non-glacial regions due to climate change and
  - ✓ groundwater depletion for irrigation and other anthropogenic activities.

Long term impact

- If Earth's axis shifts to 90 degrees, extreme seasons would cause intense climate change on every continent.
- During the summer, the Northern Hemisphere would experience nearly 24 hours of sunlight for months, which could melt ice caps, raise sea levels, and flood coastal cities.

EARTH QUAKES

GS-I GEOGRAPHY

Context

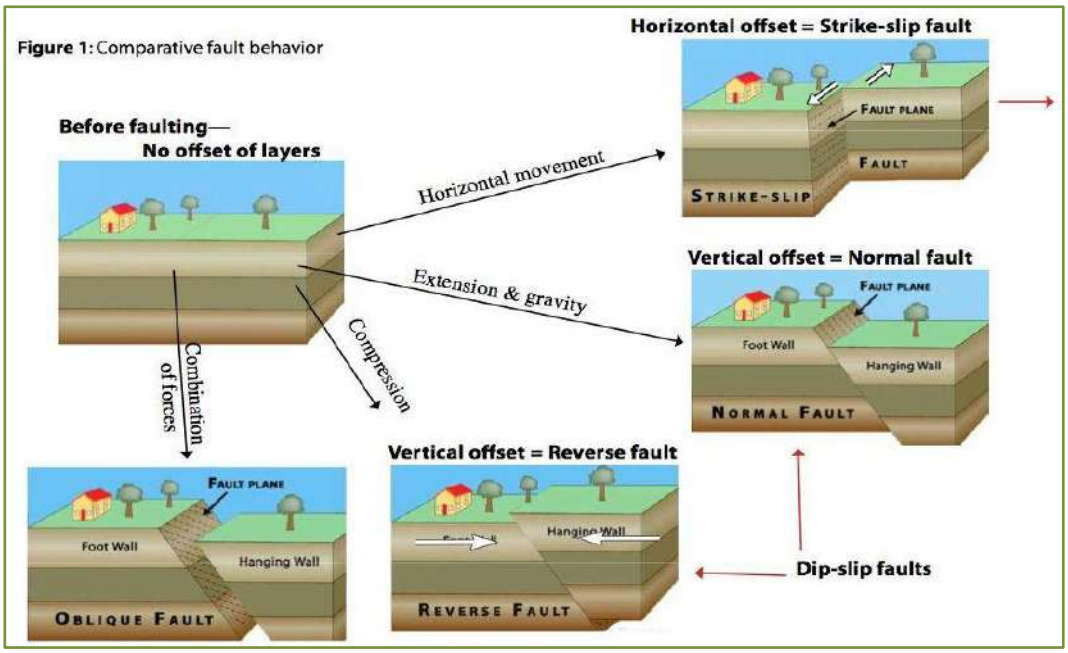
- Recently, a major earthquake measuring 6.4 on the Richter Scale jolted Northeast India.

Details

- The North East was a highly fragile and earthquake-prone zone.
- **Kopili Fault Zone:** The Kopili fault zone is a 300 km long and 50 km wide lineament (linear feature) extending from the western part of Manipur up to the tri-junction of Bhutan, Arunachal Pradesh and Assam.
- It falls in the highest **Seismic Hazard zone V.**

Earthquake

- An earthquake is the shaking of the Earth when two blocks of the earth suddenly slip past one another.
- The surface where they slip is called the fault or fault plane.
- The location below the earth's surface where the earthquake starts is **called the hypocenter**, and the location directly above it on the surface of the earth is **called the epicenter.**



Types of Earthquakes

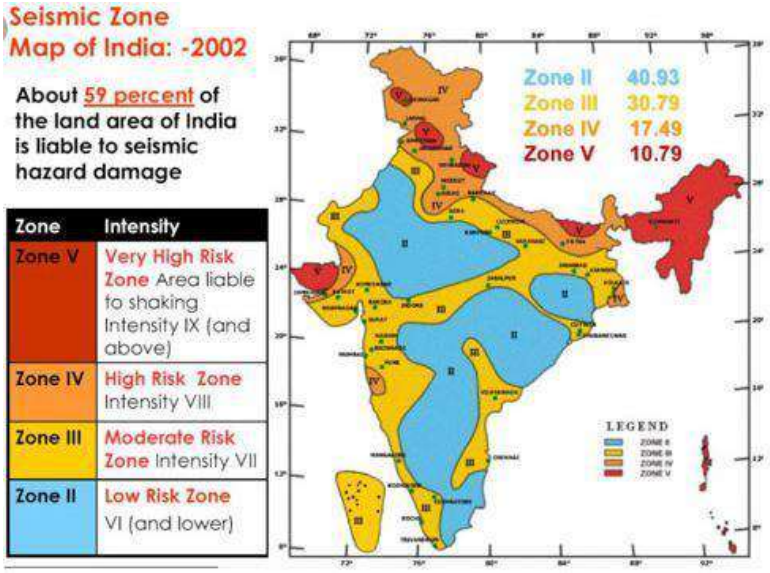
- **Tectonic:** A tectonic earthquake is one that occurs when the earth's crust breaks due to geological forces on rocks and adjoining plates that cause physical and chemical changes.
- **Volcanic:** A volcanic earthquake is any earthquake that results from tectonic forces which occur in conjunction with volcanic activity.
- **Collapse:** A collapse earthquake are small earthquakes in underground caverns and mines that are caused by seismic waves produced from the explosion of rock on the surface.
- **Explosion:** An explosion earthquake is an earthquake that is the result of the detonation of a nuclear and/or chemical device.
- **Reservoir induced Earthquakes:** These occur in the areas of huge reservoirs like dams.

Seismic Zones of India

- Seismic zones in Indian subcontinent is divided into four seismic zones based on
  - ✓ scientific inputs relating to seismicity,
  - ✓ earthquakes occurred in the past and
  - ✓ tectonic setup of the region.
- The **Bureau of Indian Standards** is the official agency for publishing the seismic hazard maps and codes.
- It has brought out versions of seismic zoning maps: a six zone map in 1962, a seven zone map in 1966, and a five zone map 1970/1984.

Seismic Active Zones

- Seismic Zone II
- Seismic Zone III
- Seismic Zone IV
- Seismic Zone V


Seismic Zone
Map of India: -2002
About 59 percent of the land area of India is liable to seismic hazard damage
Zone | Intensity
Zone V | Very High Risk Zone Area liable to shaking Intensity IX (and above)
Zone IV | High Risk Zone Intensity VIII
Zone III | Moderate Risk Zone Intensity VII
Zone II | Low Risk Zone VI (and lower)
Zone II 40.93
Zone III 30.79
Zone IV 17.49
Zone V 10.79
LEGEND

Mercalli Scale: a twelve-point scale for expressing the local intensity of an earthquake, ranging from I (virtually imperceptible) to XII (total destruction).
Richter scale: It is a scale of numbers used to tell the power (or magnitude) of earthquakes.

Types of Seismic Waves

1. BODY WAVES

- Traveling through the interior of the earth, body waves arrive before the surface waves emitted by an earthquake. These waves are of a higher frequency than surface waves.
- Body waves are of two types: Primary waves (also called P-waves, or pressure waves) and Secondary waves (S-waves, or shear waves).

P-Waves	S-Waves
Recorded first on the seismograph.	Recorded last on Seismic Waves
Longitudinal waves: Shake the medium in the direction in which they are propagating	Transverse waves: Shake the medium in the direction perpendicular to which they are moving
Compressional waves	Sheer waves
Least destructive	Slightly higher destructive power
Can travel in all mediums; Solid, Liquid and Gas	Can only move through solids
Velocity: 5 to 8 km/s.	60% the speed of P waves
Faster than the S-waves.	Slower
Shadow Zone: 103° and 142° away from the epicentre	Zone beyond 103° does not receive S-waves

2. SURFACE WAVES

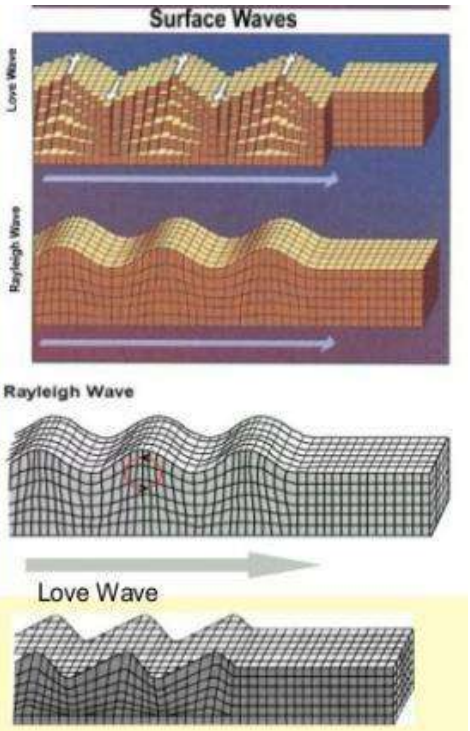
- Travelling only through the crust, surface waves are of a lower frequency than body waves. Though they arrive after body waves, it is surface waves that are almost entirely responsible for the damage and destruction associated with earthquakes.
- The two types of surface waves are named **Love waves and Rayleigh waves.**

Love Waves

Love waves are transverse waves that vibrate the ground in the horizontal direction perpendicular to the direction that the waves are traveling. They are formed by the interaction of S waves with Earth's surface and shallow structure and are dispersive waves. The speed at which a dispersive wave travels depends on the wave's period. In general, earthquakes generate Love waves over a range of periods from 1000 to a fraction of a second, and each period travels at a different velocity but the typical range of velocities is between 2 and 6 km/second.

Rayleigh Waves

Rayleigh waves are the slowest of all the seismic wave types and in some ways the most complicated. Like Love waves they are dispersive so the particular speed at which they travel depends on the wave period and the near-surface geologic structure, and they also decrease in amplitude with depth. Typical speeds for Rayleigh waves are on the order of 1 to 5 km/s.



India and earthquakes

- More than 60% of the land in India is prone to moderate to very high-intensity earthquakes.
- Some major past earthquakes in India
  - 1934 Bihar-Nepal Earthquake : 8.4 magnitude
  - 1967 Koyna Earthquake : 6.5 magnitude
  - 2001 Bhuj : 7.7 magnitude
  - 2005 Jammu Kashmir Earthquake

Causes of Earthquakes in India

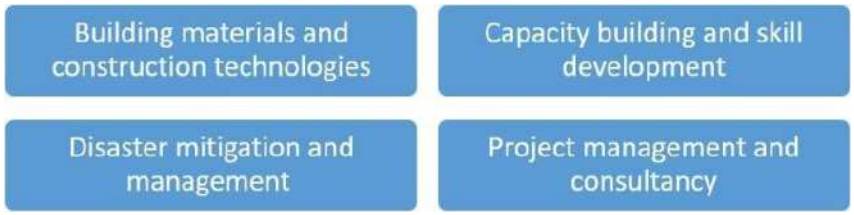
- **North –East region:** Collision zones of the Himalayan belt and Sumatran belt. Kopili fault is currently the most active seismic zone in North East India.
- **Himalayan belt–** Collision between Indo-Australian plate with Eurasian plate and Burma Plate with Java Sumatra.
- **Andaman and Nicobar Islands–** Seafloor displacement and underwater volcanoes.
- **Deccan Plateau–** Energy build-up along the fault line of the river Bhima (Krishna) near Latur and Osmanabad (Maharashtra).
- **Anthropogenic:** Increasing population and unscientific land use in construction.

Impact of Earthquakes

- Loss of Human Lives
- Change in River Course
- Landslide
- Floods
- Landslide
- Tsunami
- Floods
- Avalanches
- Damage to property

Steps taken by Government to manage Earthquakes

- National Center for Seismology, Ministry of Earth Sciences: For Earthquake surveillance and Hazard Reporting
- National Earthquake Risk Mitigation Project
- National Building Code (NBC): To regulate building construction
- Building Materials & Technology Promotion Council (BMTPC): Areas of work-


Building materials and construction technologies
Capacity building and skill development
Disaster mitigation and management
Project management and consultancy

- National Retrofitting Program
- **'India Quake' mobile app** to disseminate real-time earthquake information.

International Cooperation

- 2019 Shanghai Cooperation Organization Joint Exercise on **Urban Earthquake Search and Rescue- 'SCOJtEx-2019'** held in New Delhi.
- BIMSTEC Disaster Management Exercise in Odisha.
- India is a signatory to the Sendai Framework for Disaster Risk Reduction.
- Coalition for Disaster Resilient Infrastructure (CDRI) launched by India at the 2019 UN Climate Action Summit.

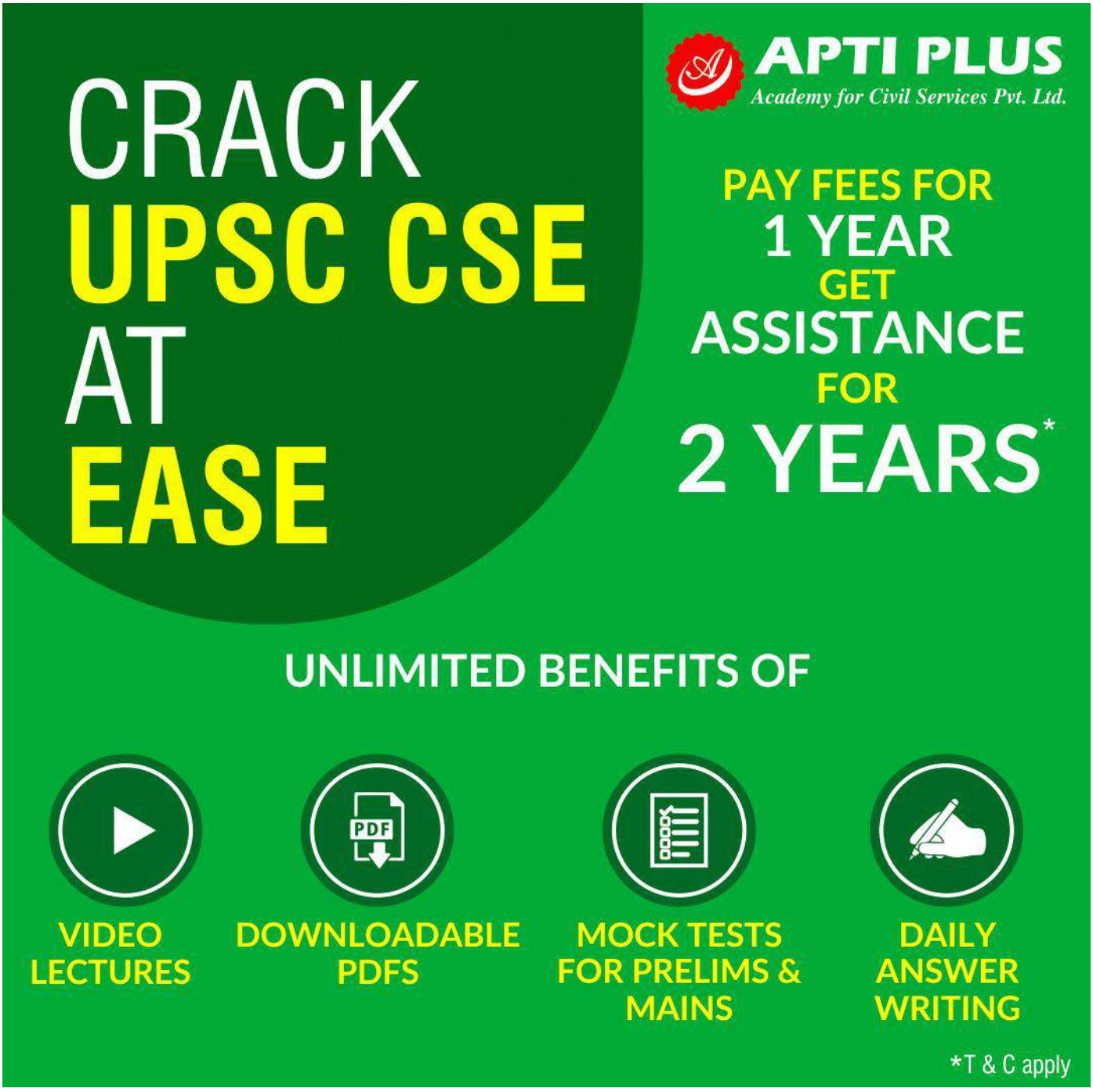
Challenges and Gaps in Earthquake management in India

- **Incomprehensive Policies:** Scientific research findings on the Kopili fault earthquake zone have hardly made it into disaster reduction policies. Bridging this gap is key to formulating any meaningful earthquake damage mitigation plans.
- **Hilly and mountainous region:** Retrofitting is difficult and costly in these regions
- **Lack of Skilled Human Resource:** for resistant design and building.
- Poor/no campaign of sensitizing the decision-makers and Government on the need for earthquake preparedness.
- **Lack of formal competency based licensing** of structural engineers and masons.
- Even today most consulting engineers do not follow even the available Indian Standard design provisions for making earthquake-resistant constructions,
- Restricted earthquake engineering and preparedness education.
- **Inadequate monitoring and enforcement** of earthquake-resistant building codes;
- **Faulty construction:** NDMA said that close to 4,000 multi-storied buildings in Ahmedabad won't survive a high magnitude earthquake due to a faulty design.
- **Paucity of funds:** Insufficiency in fund mobilization.
- **Disaster response regime not swift:** Testimony - Uttarakhand floods
- **Lack of awareness:** and training of the local population.

Way forward

- Strengthening of emergency response capability in earthquake-prone areas.
- Implementation of NDMA guidelines on earthquake in letter and spirit.
- Exclusive earthquake management department.
- Investing in prevention is important, but is not a substitute for preparedness;
- Promotion of traditional Khasi model of houses in the hilly region.
- Single point contact mechanism to address coordination challenges.
- Training and capacity building of Local population at war footing.
- Research and development institutes for Earthquakes.

- **Learning from other countries:** Over the last century, seismic engineering has evolved in countries like Japan, New Zealand and USA, and is reasonably well documented. The Indian professional community can learn from this vast experience available across the world.
- **The Case of Japan:**
  - Japan has a long history of devastating natural disasters – from lightning strikes that have destroyed entire castles to the 2011 Tohoku earthquake and tsunami that wiped out entire towns.
  - Yet, Japan remains a thriving country. Japan's effective and contextualized Disaster Management System is important **for all countries to see how theory is put into practice.**



GOVERNOR : AN AGENT OF THE CENTRE

Context

- The West Bengal Governor Jagdeep Dhankhar visited the areas hit by post-poll violence in Cooch Behar.
- This act of Governor constitutes a grave transgression of the bounds of constitutional propriety and highlights his disregard for the principle that constitutional heads should not air their differences with the elected regimes in public.

Meaning of Agent of Centre

- Governors are **always seeking an opportunity to run down the state government** when it is in the hands of a party opposed to the party ruling at the centre.
- He is always **trying to bring about a government of the same party** as at the centre.

Different Methods to act as agent of Centre

- Issues of selecting the chief minister
- Determining the timing for proving legislative majority
- Demanding information about day-to-day administration
- Taking apparently long time in giving assent to bills or reserving bills for the President
- Commenting adversely on specific policies of the state government

Philosophy of Discretionary Powers of Governor

- Discretionary power, beyond the specific situations mentioned in the constitution, does **not enable a governor to override the state government**.
- It **is not a general clause giving the governor power to disregard the advice** of his ministers in any matter in which he finds he ought to disregard.
- Governor discretionary **powers are for good and pure administration**, and not for promoting the interests of the party ruling at the centre.

Different Role of Discretionary Powers

- Role of seeking **information from ministries is to advise the ministry, to warn the ministry, to suggest to the ministry** an alternative for any action which would be constitutional and in public interest and ask for reconsideration.
- **Reserving a bill for President Consideration**: It is necessary for the governor to make sure that state's laws fall within the framework of the constitution.
- **Appointment of Chief Minister**: According to the Sarkaria Commission, this power's role is to see that a government is formed and not to try to form a government.

Why Governors act as Agent of Centre

- **Appointment**: Since, he is appointed by the centre, hence, on the interest of centre.
- **Lack of tenure**: Governor doesn't have security of tenure which makes them dependent upon the centre wishes.
- **Discretionary powers**: Discretionary constitutional powers like reserving the bills for president consideration provides for the centre's interference with state legislative process.
- **Credibility of Person:** Governor post has become a parking lot for the retired bureaucrats and politicians rather than for people of high integrity.

Way Forward

- Sarkaria commission recommended that the governor should be appointed only after **consultation with the respective chief minister**.

- Some scholars have even suggested that the **appointment should be made from a panel prepared by the state legislature and actual appointing authority** should be the Inter-state Council, not the central government.
- In the B.P. Singhal case, Supreme Court has already highlighted that **governor is a constitutional position and not an agent of centre.**

Conclusion

- Centre shouldn't use the governor's office as an instrument for controlling state politics by exploiting his tenurial insecurity, party loyalty or through pandering his ambition. It **is better for the country in the long run to respect such public opinion and to let the governor act on his sagacity** and sound judgment.

CENTRE-STATE RELATIONS IN COVID-19 — GS-II POLITY

Context

- In the recent rise in coronavirus cases, states have accused the centre to follow arbitrary and discriminatory approaches in allocation of critical resources like Oxygen.

Prevailing Issues during Covid 19

- **Too Much or Too Little Responsibility:** At the beginning centre was accused of **following one size fits all approach** in the lockdown and policy guidelines. In the 2nd wave, the centre has **been accused of evading its responsibility** of managing the virus and left everything on the states.
- **Lack of Planning:** Federal relations have been marked with lack of planning in dealing with the 2nd wave. There was **no federal committee to look for oxygen allocation** and distributing the scarce resources. **No bottom-up planning** was undertaken to map the resources.
- In the 1st wave, **the centre was accused of micromanaging the crisis** where it sent teams to the district in an arbitrary manner. In the 2nd wave, the centre **shared no successful case studies with the states to mitigate the crisis.**
- **Discriminatory Policy**: Allocation from the PM Cares towards boosting the state resources have been discriminatory and arbitrary in nature.
- **Increased Financial burden on states**: The Centre has brought discriminatory vaccine policy which discriminates between the federal and state government. It has brought additional financial burden on the state government.
- **Not giving extension for GST:** Coronavirus wave has hampered the state's capacity to raise resources. In such a scenario**, states are demanding extension of GST compensation**, but so far, no response has been given by the centre.
- **Centre has made PM-Care eligible to receive the CSR funds while the chief minister relief fund is still not CSR** eligible. It leads to high dependency of states on centre.
- Centre approach has been **more of Knee-jerk reaction than Proactive** in nature.

Reasons behind deteriorating federal relations

- **Role of Disaster Management Act:** Disaster management act provides sweeping power to the central government. Though the act did not contain provision to deal with epidemics but centre has used it to issue guidelines and bypass the state domain.
- **Role of Epidemics Act:** Epidemics act **provide for regulation by central and state governments.** But, it doesn't provide for the rules and regulations leaving open to interpretation. In Such scenario, central govt has usurped the power and made the rules.
- **Lack of Entry in Seventh Schedule:** The Seventh schedule **doesn't have an explicit entry on epidemics** hence the government **had to rely on "Social security and social insurance**; employment and unemployment" to trigger provisions of the DM Act.

- The epidemic was **not only a health crisis but brought the resulting law and order crisis which led to intervention of Home ministry**. This further led to micromanagement of affairs.
- **Lack of state capacity:** States in India are often accused of being populist in nature and g**enerally avoid the hard steps like complete lockdown**. This brings centre intervention in the crisis.

Way Forward

- The GST compensation act should further be extended by mutual consultation as the last two years were not normal years and state finances have taken a hit.
- Interstate council under article 261 of constitution must be organised regularly for sharing of the best practices, resource allocation and devising pan India strategy.
- In recent times, the Prime minister has initiated working with the chief minister to find out the solutions which are locally sensitive.
- NITI Ayog must utilise the Chief Minister governing council to prepare a long term agenda to expedite the economic recovery. It must also formulate a comprehensive act to deal with the third wave.

International Experience

Germany

- In Germany, provincial governments are very strong constitutionally. And the central role was limited to only sharing the guidelines of the management and research on corona. It was the provincial government which made rules on lockdown, sharing of resources.

Canada

- In Canada, emergency measures were invoked at the federal level by emergency act-1987. At the provincial level, the health act of provinces helped in managing the crisis. Thus, the health was managed at state level.

INDIAN STATE: FROM FLAILING TO FAILED STATE

GS-II POLITY

Context

- Indian state failed to provide a comprehensive solution to the Covid crisis.

Concept of Flailing state

- A Failing state is the one where the government at central and state level appears responsive and effective but it has very little feedback system with the grassroot level. Grassroot level continues to linger on with the backwardness.

Features of Flailing State

- State was capable of undertaking "thin", logistical, tasks.
- Tasks where goals are clear, outputs visible and include command-and-control actions could be achieved.
- India managed to conduct large-scale elections, vaccination programmes (the irony is inescapable), even handled natural disaster relief with relative competence highlights that it can undertake thin, logistical tasks.

Example of Flailing State

- Public health system is an example of it. In India, at the top level multiple schemes related to health services are run which focuses on improving the infrastructure, improving the no of personnel. But at the grassroot level such facilities are missing. Barely, there is any availablity of doctors and good infrastructure at the district level.

Failure of the State

- **Lack of services to citizens:** Citizens are struggling to find oxygen, basic medicines and hospital beds.
- **No Government**: The national government is no longer visible.

- **Lack of Policy Formulation**: The Centre has failed to develop policies on oxygen supply, availability and access to basic medicines, treatment protocols, data systems, vaccinations.
- The political leadership, from the Prime Minister downwards, is completely absent, and bureaucracy is drafting confused policy.
- **Lack of coordination with state government:** Oxygen supply chains and aid distribution cannot be streamlined weeks even after hospitals and state governments sounded alarm bells.
- Central and state governments have locked themselves in a bitter political war.

Required Policies by Government

- A comprehensive hospital policy is required to clearly demarcate between covid and non covid hospital. It also require to establish when the hospital would admit any patient in case of covid.
- A transparent human resource policy is needed at district which will clearly outline on availablity of no of personnel, their training status especially with regard to capability to run a ventilator.
- Government needs to develop policies based on evidence-based data on oxygen requirement , allocation and supply processes;
- Government needs to establish war-rooms at every level of administration to help citizens find beds, oxygen, medicines and tele-consultation
- Resource primary health centres and wellness centres with medicines, oxygen and capacity to triage patients to reduce stress on hospitals.
- We need enhanced surveillance capacity, transparent and accurate data on every aspect of the disease.
- There is a need for enhanced inter-state coordination.
- Set up an inter-state council within the National Disaster Management Authority, comprising the PM, chief ministers, senior ministers and bureaucrats from both states and the Centre.

LEGISLATIVE COUNCILS IN THE STATES

GS-II POLITY

Context

- The West Bengal government has decided to set up a Legislative Council (Vidhan Parishad).

About legislative councils

- India has a bicameral system i.e. two Houses of Parliament.
- At the state level, the equivalent of the Lok Sabha is the Vidhan Sabha or Legislative Assembly; that of the Rajya Sabha is the Vidhan Parishad or Legislative Council.

Constitutional Provision for legislative councils

- Under Article 169 of the constitution, Parliament may by law create or abolish the second chamber in a state if the Legislative Assembly of that state passes a resolution to that effect by a special majority.

Need of the legislative councils

- To act as a check on hasty actions by the popularly elected House.
- To ensure that individuals who might not be cut out for the rough-and-tumble of direct elections too are able to contribute to the legislative process.
- Having a second chamber would allow for more debate and sharing of work between the Houses.

Challenges in the functioning of legislative councils

- **Superfluous legislative appendages**: If a majority of the members in the upper house belong to the same party which holds majority in the lower house, the upper house will become a mere ditto chamber.

- **Not an Effective Check:** Powers of the Legislative Councils are limited to the extent that they can hardly impose any effective check on the Assemblies. It can only delay a bill by four months.
- **Backdoor Entrance of the Defeated Members:** It is apprehended by the critics that a Legislative Council may be utilized to accommodate discredited party-men who may not be returned to the Assemblies.
- **Costly Institution:** Bicameralism in the States is an expensive experiment and a big drain on the State's exchequer.
- **A Heterogeneous Chamber**: A blend of direct election, indirect election and nomination makes the Council a hotchpotch of representation. A chamber so heterogeneously constituted, neither serves the purpose of a revisory chamber nor acts as an effective brake against hasty legislation.

Way Forward

- Legislative council's composition **can be changed to reflect the local government** where elected representative from local government would be its members.
- Its mandate **can be changed to protect the interest of local government** like currently rajya sabha mandate is to protect the federal system.

Councils in other states

- Besides Andhra Pradesh, five other states have Vidhan Parishads — Bihar (58 members), Karnataka (75), Maharashtra (78), Telangana (40), UP (100). Jammu and Kashmir had a Council until the state was bifurcated into the Union Territories of J&K and Ladakh.

Legislative Councils vis-à-vis Rajya Sabha

- The legislative power of the Councils are limited. Unlike Rajya Sabha which has substantial powers to shape non-financial legislation, Legislative Councils lack a constitutional mandate to do so.
- Assemblies can override suggestions/amendments made to legislation by the Council.
- Again, unlike Rajya Sabha MPs, MLCs cannot vote in elections for the President and Vice President. The Vice President is the Rajya Sabha Chairperson while a member from the Council itself is chosen as the Council Chairperson.

Membership in the council

Composition of a Legislative Council	
Constituency	**Number of Members to be elected**
Graduates	One-Twelfth (1/12th)
Teachers	One-Twelfth (1/12th)
Local Authorities	Nearly One-Third (1/3rd)
Assembly Members	Nearly One-Third (1/3rd)
Nomination by Governor	Remaining

FOREIGN CONTRIBUTION REGULATION ACT 2010

GS-II GOVERNANCE

Context

- Indian entities, including hospitals and charitable trusts, hoping to receive COVID-19 relief material from overseas are facing delays as they are not registered under the Foreign Contribution Regulation Act (FCRA). Amended provisions of the FCRA act- 2010 has made the task of civil society very difficult.

Role Played by Civil Society in Covid

- NGOs have been actively **setting up community kitchens, creating awareness about prevention, and physical distancing, providing shelter to the homeless, the daily wage workers,** supporting government efforts in setting up health camps and in deputing volunteers to deliver services to the elderly, persons with disabilities, children, and others.
- An outstanding contribution of **NGOs was in developing communication strategies in different vernaculars which went a long** way in taking awareness measures to the community level.
- AkshayaPatra, Rama Krishna Mission, Tata Trusts, Piramal Foundation, Bill and Melinda Gates Foundation, Action Aid, International Red Cross Society, Prayas, Help-age India, SEWA, Sulabh International, Charities Aid Foundation of India, Gaudia Math, BachpanBachaoAndolan, the Salvation Army, and Catholic Bishops' Conference of India are some partners who have **embodied the whole-of-society approach in COVID-19 response** management.
- Civil societies have **organized oxygen camps where oxygen equipped beds** were provided to those who couldn't get it in hospital.
- The NGO leaderships **created momentum throughout their networks** and delivered the much needed response.
- They also brought to the **attention of the group the problems from the grassroots.**

About FCRA

- The Foreign Contribution (Regulation) Act **regulates the receipt of foreign contribution or aid from outside India for use in the country.**
- This is essential to ensure that such aid does not affect political or any other situation in India.
- For genuine donation, the provision of law is not very difficult to comply.
- The **compliance is limited to filing annual return** every year.
- This law is enforced by the Ministry of Home Affairs.
- There is a separate section in the MHA to ensure compliance to the Foreign Funding Registration.

Amended Provisions

Provision	Amended Provisions
Prohibition to accept Foreign Contribution	**The amended act adds public servants (as defined under the Indian Penal Code) to this list.**
Transfer of foreign contribution	**The amended Act amends this to prohibit the transfer of foreign contribution to any other person.**
Aadhaar for registration	**The amendment adds that any person seeking prior permission, registration or renewal of registration must provide the Aadhaar number of all its office bearers, directors or key functionaries, as an identification document.**
FCRA account	The Act amends this to state that foreign contribution must be received only in an account designated by the bank as "FCRA account" in such branch of the State Bank of India, New Delhi, as notified by the central government. No funds other than the foreign contribution should be received or deposited in this account.

Restriction in the utilisation of foreign contribution	The amendment adds that the government may also **restrict usage of unutilised foreign contribution for persons who have been granted prior permission** to receive such contribution.
Renewal of license	The Bill provides that the government may conduct an inquiry before renewing the certificate to ensure that the person **making the application: (i) is not fictitious or benami, (ii) has not been prosecuted or convicted for creating communal tension or indulging in activities aimed at religious conversion, and (iii) has not been found guilty of** diversion or misutilisation of funds, among others conditions.
Reduction in use of foreign contribution for administrative purposes	The amendment reduces this limit to 20%.

Challenges associated with FCRA

- Issues lies with **ambiguity in words such as Public interest or economic** interest.
- Recent amendment would restrict those small NGOs that are unable to get registered yet require funds.
- By allowing only some political groups to receive foreign donations and disallowing some others, **can induce biases in favor of the government.**
- Many NGOs have been de-registered by the security agencies on public interest without clear explanation.
- It would also **cause delayed functioning to those subsidiary NGOs which are** dependent on other Large NGOs for funds.
- The FCRA restrictions have **serious consequences on both the rights to free speech and freedom of association under Articles 19(1)(a) and 19(1)(c)** enshrined in the Constitution.
- Without the registration under FCRA, no NGO can receive funds over rupees 25000 at one time. This has restricted smooth functioning of many NGOs.

Way Forward

- Government must **allow the extension for the civil society** to get registered and let them work without any hindrance.
- **Extension for compliance with opening of the bank account** at a designated bank must be also provided, as most of the cities are under lockdown.
- **NITI Ayog must provide the hand holding for the smaller civil society** groups for the compliance with the law.

PUBLIC PRIVATE PARTNERSHIP IN MEDICAL EDUCATION

GS-II GOVERNANCE

Context

- According to NITI ayog, Central government will offer viability gap funding of 60% and in certain cases upto 80% of the cost of setting up medical colleges in existing district hospitals under public private partnerships.

Reason behind the Move

- It will **rope in private investors who will access the land** available at the existing hospital to set up the college.
- They will **bring efficiency under an arrangement** with the government to improve health education at district levels.
- **It will complement other efforts in the health sector:**
  - offering cashless health insurance cover to 500 million people,
  - offering incentives for setting up factories to produce medical devices and drugs.
- It will **help in mitigating the shortage of doctors as** it will accelerate the growth of development of medical colleges.

- It will **help in tapping the resources of private sector** as government is resource scare in nature.

Challenges with the Move

- This proposal is **against the recommendation of every national expert committee or policy statement or policy committee** that has ever been constituted.
- **Exclusion of the Poor:** District hospitals are considered as the last resort for the poor. The corporatisation will make the services very costly and exclude them from getting care.
- **Continuation of issue of lack of doctors in rural areas:** This move would shut the door on a large number of medical aspirants who would otherwise have a strong motivation to work in rural areas but do not have the means to finance themselves.
- This **proposal is not aligned with India's national health policy goals** like achieving universal health care and health equity.
- States have alleged that it is violation of federalism as health is a state subject.

Way Forward

- Health is a **public good as its purpose is to improve the population's health** and decrease disease burden.
- There should **be a substantial step-up in public investment in health Infrastructure.** 5th Finance Commission has asked to raise it to 2.5 per cent by 2024
- By **establishing new medical colleges, the government can increase student intake as well as enhance equitable access** to medical education. Besides, it must allocate adequate financial resources to strengthen the overall capacity of existing medical colleges to enrich student learning and improve output.

Case Study of PPP in Rajasthan

- It was initiated in December 2015, when the Rajasthan government opened bids to private parties, both non-profit and for-profit organisations, to run all 213 of the state's PHCs.

Results of it

- While in some villages, the people were satisfied with services provided, in others people were distrustful of the privately-run PHCs.
- Public health specialists in Rajasthan say that the PHCs managed by private organisations may work well on curative healthcare, but do not implement preventive and promotive health measures.

ELECTORAL BOND

GS-II GOVERNANCE

Context

- Electoral bonds worth INR 695 crore sold during recent Assembly polls, highest amount in Kolkata. The amount sold was the highest-ever for any Assembly elections since the scheme started in 2018.

About Electoral Bonds

- An electoral bond is designed to be **a bearer instrument like a Promissory Note** — in effect, it will be similar to a bank note that is payable to the **bearer on demand and free of interest**.
- It can be purchased by any **citizen of India or a body incorporated in India.**

Mechanism of Electoral Bonds

- The bonds will be issued in multiples of INR 1,000, INR 10,000, INR 1 lakh, INR 10 lakh and INR 1 crore and will be available at specified branches of State Bank of India.
- They can be bought by the donor with a KYC-compliant account.
- Donors can donate the bonds to their party of choice which can then be cashed in via the party's verified account within 15 days.

Conditions related to Electoral Bonds

- Every registered party which has secured at least one per cent of the votes polled in the most recent LokSabha or State election will be allotted a verified account by the Election Commission of India.
- Electoral bond transactions can be made only via this account.
- The bonds will be **available for purchase for a period of 10 days each** in the beginning of every quarter, i.e. in January, April, July and October.
- The electoral bonds **will not bear the name of the donor. In essence, the donor and the party details will be available with the bank, but the** political party might not be aware of who the donor is.

Opposition to the electoral Bonds:

- **Anonymity**: voters do not know which individual, company, or organisation has funded which party, and to what extent.
- The government of the day **can always access the donor details by demanding the** data from the State Bank of India (SBI) which makes them more powerful.
- Printing of these bonds & SBI commission for facilitating the sale and purchase of the bonds is paid from the **taxpayers' money by the central government.**
- Classification of 1% vote share is arbitrary in nature.
- RBI has said the bonds would set a "**bad precedent**" since it would allow for money laundering and undermine trust in banknotes.

Popularity of Electoral bonds as route of Donation:

- By virtue of the anonymity they offer to donors, electoral bonds **have become the most popular route of donation.**
- In the years 2017-18 and 2018-19, **political parties received a total of Rs 2,760.20 crore from electoral bonds, of which Rs 1,660.89 cr or 60.17%** was received by the BJP alone.

Election commission stand on Electoral Bonds

- It had **objected to the amendments in the Representation** of the People (RP) Act, which exempt political parties from disclosing donations received through electoral bonds.
- It **described the move as a "retrograde step"**.
- The Commission had even asked the **government to "reconsider" and "modify"** the above amendment.

Supreme Court Verdict on Electoral bonds

- Recently, Supreme Court has allowed the sale of the electoral bonds and held it constitutional in nature. Following are the responses held by Supreme Court against the charges:

Charges	Court Response
Anonymity of the buyers which allows channelizing of money without public scrutiny.	It ensures that everything happens through the banking channels alone. The purchase as well as encashment of the bonds, happening only through banking channels, is always reflected in documents that eventually come to the public domain.
Financing of the Political Parties by the Corporate Houses	The bonds require fulfillment of the KYC requirements. The Spent money will always reflect on the expense sheet of company.
Influence of the foreign Cooperation by purchase of electoral bonds	Bonds can be purchased only by a person who is a citizen of India or incorporated or established in India.
It will lead to flow of black money as it can be sold outside.	Bonds are not tradable under clause 14. Moreover, the first buyer will not stand to gain anything out of such a sale except losing white money for the black.

IT RULES DEBATE

Context

- Recently, a debate has propped up regarding the compliance of the IT rules by the big social media giants like Facebook, Whatsapp etc.

Internet intermediaries

- Internet intermediaries can be described as **entities that facilitate access to the internet or services on the internet (Association Progressive Communications 2014**). For example, internet service providers, social media networks, search engines, etc. Generally, the intermediaries adopt a passive approach to the content they provide or host (unlike book publishers).
- Since they generally do not have editorial control over the content, countries are encouraged to enact safe harbour protections which offer immunity to intermediaries from criminal liability. In India, the safe **harbour provisions have been defined under Section 79 of the IT** Act.

Need of the IT Rules

- **Curb on terrorism:** These platforms are being **used for terrorist activities by recruiting people, financing of the activities.** The rules will help to ensure accountability of these platforms.
- **Ensure rule of law:** The platforms **have themselves appropriated the role of court** where they are judging what is freedom of speech and what is not.
- **Ensure sovereignty:** Currently, these **giants do not have any accountability towards the Indian government for any illegal content.** The rules will help in bringing application of the legal framework towards these giants.
- **Curtail fake news:** These platforms are increasingly being used to paddle the fake news.
- The algorithms used by these platforms to optimize views and advertisements often fail to distinguish between relevant or useful content and abusive content and fake news, thereby amplifying them in very little or no time.

Supreme Court Verdict regarding regulations of Social Media

- The Supreme Court in **2018, in the Tehseen S. Poonawalla v/s Union of India case**, directed the government to curb and stop dissemination of explosive messages and videos on various social media platforms which have a tendency to incite mob violence and lynching of any kind.3
- The Court in 2017 observed that the **government may frame necessary guidelines to eliminate child pornography, rape and gang rape imageries, videos and sites in content** hosting platforms and other applications.

The Rules

- The 2021 Rules also now permit the intermediaries to take down any unlawful information on a voluntary basis.
- Each significant social media intermediary is required to establish a grievance redressal mechanism and appoint three officers:
  - A **Chief Compliance Officer who shall be responsible for compliance** of the Information Technology Act and the rules framed there under.
  - **Nodal Contact Person who shall be responsible for communication** with law enforcement agencies
  - a **Resident Grievance Officer who shall be responsible** for the grievance redressal mechanism.
- All these officers are required to be residents of India.
- Another obligation cast upon these **intermediaries is to enable identification of the 'first originator' of any information on** its platform.
- **Removal of non-consensual intimate pictures** within 24 hours,
- Publication of compliance reports to increase transparency,
- Setting up of a dispute resolution mechanism for content removal

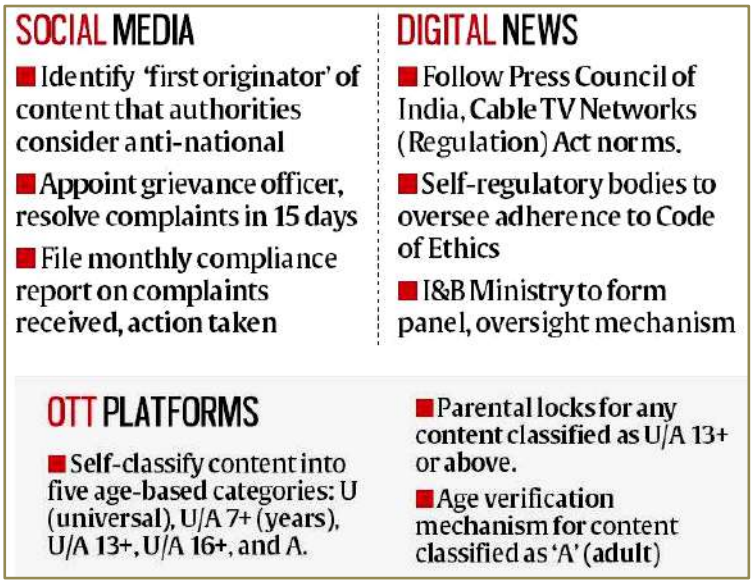
- Adding a label to information for users to know whether content is advertised, owned, sponsored or exclusively controlled.

On OTT Platforms

- OTT platforms would be **called as 'publishers of online curated content'** under the new rules.
- They **would have to self-classify the content into five categories based on age and use parental** locks for age above 13 or higher.
- They also need to include age verification mechanisms for content classified as 'Adult'.

Significance of the IT rules

- The IT Rules 2021 aim to **empower ordinary users of social media platforms and OTT platforms** with a mechanism for redressal and timely resolution of their grievance.
- Special emphasis has been **given on the protection of women and children from sexual offences, fake news** and other misuse of the social media.
- **Identification of the "first originator of the information"** would be required in case of an offence related to sovereignty and integrity of India.
- The rules are **framed in accordance with the supreme court guidelines**.


SOCIAL MEDIA
Identify 'first originator' of content that authorities consider anti-national
Appoint grievance officer, resolve complaints in 15 days
File monthly compliance report on complaints received, action taken
DIGITAL NEWS
Follow Press Council of India, Cable TV Networks (Regulation) Act norms.
Self-regulatory bodies to oversee adherence to Code of Ethics
I&B Ministry to form panel, oversight mechanism
OTT PLATFORMS
Self-classify content into five age-based categories: U (universal), U/A 7+ (years), U/A 13+, U/A 16+, and A.
Parental locks for any content classified as U/A 13+ or above.
Age verification mechanism for content classified as 'A' (adult)

Challenges

- It **goes beyond the purview of IT act -2000**. It controls the digital media also which was outside of IT act.
- An intermediary is **now supposed to take down content within 36 hours** upon receiving orders from the Government. This deprives the intermediary of a fair recourse in the event that it disagrees with the Government's order due to a strict timeline.
- It places **fetters upon free speech by fixing the Government** as the ultimate adjudicator of objectionable speech online.
- These Rules **undermine the right to privacy by imposing** a traceability requirement.
- Traceability requirement **will also render all the data** from these conversations vulnerable to attack from ill-intentioned third parties.

Way Forward

- **Uniform Application of Law:** The laws to combat unlawful content are already in place. What is **required is their uniform application**.
- **Deliberating with Stakeholders**: The solution to ongoing criticism about these rules is to start afresh with the publication of a white paper.
- **Statutory Backing**: After that, if regulation is still deemed to be necessary, then it must be **implemented through legislation that is debated in Parliament** instead of relying upon executive rule-making powers.
- **Expediting Data Protection Law**: Making platforms share more information could prove counterproductive in a **country where the citizens still do not have a data privacy law** to guard themselves against excesses committed by any party. In this context, there is a need to expedite the passing of the personal data protection bill, 2019.

LAKSHADWEEP DRAFT LAWS

Context

- A slew of draft legislation, brought in by Lakshadweep administrator since February this year, have sparked a massive uproar.
- Much of the anger appears to be directed at three of the draft laws — the Prevention of Anti-Social Activities Regulation (PASA), the Animal Preservation Regulation, and the Panchayat Regulation.

The Prevention of Anti-Social Activities Regulation (PASA)

- It provides **for the administrator to order the detention of a person for a period of upto one year if the offender's actions** "adversely affects the maintenance of public order".
- a person shall be deemed to be acting in any manner prejudicial to the maintenance of public order when he is engaged:
  - as a bootlegger or cruel person or dangerous person,
  - or drug offender or immoral traffic offender
  - property grabber or cyber offender
  - money lending offender or depredator of environment or sexual offender.

Opposition

- Activists have **questioned the need for PASA considering the crime rate** on the islands is very low as compared to the rest of India.
- The regulation **will give power to the administrator to order detention of any** individual for an year without any valid grounds.
- Real purpose is to **smother dissent or protests** against the policies and actions of the administrator.

Government Response

- The PASA, however, isn't unique to Lakshadweep. Several states, including Kerala, Karnataka, Tamil Nadu and Uttar Pradesh have similar regulations.
- Government is developing the island as a tourist hub. Government **should be prepared to tackle any law and order problem arising because of growing** tourism numbers.
- **Strict and stringent laws are needed** so that the youth here are not misguided.

The Lakshadweep Animal Preservation Regulation, 2021

- The new regulation not only bans cow slaughter, it also prohibits buying, selling, transportation or storing beef or beef products in any form.
- Violation will invite a maximum jail term of 10 years and fine of up to Rs 5 lakh.
- The regulation states that it provides for the preservation of animals suitable for milch, breeding or for agricultural purposes.
- the slaughter of animals, other than cows or bulls, for religious purposes will require a certificate from the authorities.

Government Stand

- Government want to **preserve milch animals**. It has nothing to do with Lakshadweep being a Muslim-majority island and their religious beliefs.

Opposition

- Since **96% of the community is the muslim**, such legislation goes against the cultural and religious ethos of the population.

The Lakshadweep Panchayat Regulation, 2021

- The law disqualifies those **with more than two children from getting elected** to the gram panchayat.

- However, the law **will not disqualify anyone having more than two children** if they have been elected before the regulation has been notified.
- The regulation also **provides for reservation of 50 per cent seats** in gram panchayats for women.

Government Stand

- Lakshadweep's population density, **according to the 2011 Census, was 2,149 people/sq km**, much higher than the national average of 382 people/ sq km. It needs to develop resources and infrastructure within that area.

Opposition

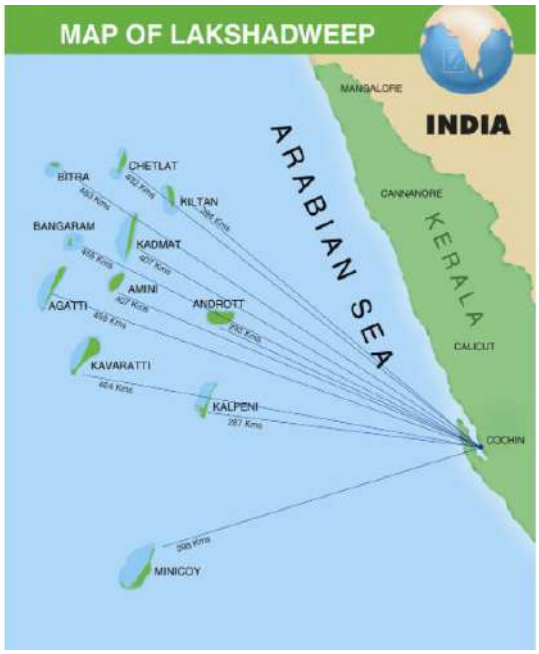
- Such stringent rules **haven't been effective in controlling** the population boom.

Other Challenges

- These draft **laws have been introduced without local consultation.**
- It will create **discord in communal harmony of the island,** which is of vital importance to national security.
- Proposed measures smack not of development but **alien and arbitrary policymaking, in violation of established practices** that respect the environment and society of Lakshadweep.
- New **legislation vests arbitrary and draconian powers in the Administrator** to acquire, alter, and transfer properties.

About Lakshadweep

- Lakshadweep is a tropical archipelago of **36 atolls and coral reefs in the Laccadive Sea**, 280 km to 480 km off the coast of Kerala. 11 are inhabited.
- But currently, there are 35 islands, as the **Parali 1 island submerged in water due to sea erosion.**
- Lakshadweep means **"one lakh islands"** in Malayalam, the official as well as the widely spoken native language in the territory. Fishing is the most important industry.
- The islands form the smallest union territory of India and their total surface area is just 32 km square.
- **Kavaratti** serves as the capital of the Union Territory and the region comes under the **jurisdiction of Kerala High Court.** It is a uni-district Union Territory.
- The principal languages of Lakshadweep are Malayalam, Jeseri (DweepBhasha) and Mahl.
- These islands were earlier known as Laccadive, Minicoy, and Amindivi Islands.
- The name Lakshadweep was adopted on 1st November 1973.



MGNREGA SCHEME

GS-II GOVERNANCE

Context

- Union Minister of Rural Development launched National Mobile Monitoring Software (NMMS) app and Area officer monitoring App.

NMMS App

- It permits **taking real time attendance of workers at Mahatma Gandhi** NREGS worksites along with **geotagged photograph**, which will increase citizen oversight of the programme besides potentially enabling processing payments faster.

Area Officer Monitoring App

- It will facilitates **recording findings online along with time stamped and go-coordinate tagged photograph for** all the schemes of Department of Rural Development- Mahatma Gandhi NREGS, PMAYG, PMGSY.
- It would also enable not only better record keeping of inspections by field and supervisory officials but also facilitate analysis of the findings for better programme implementation.

About MGNREGA

- It provides a **legal guarantee for one hundred days of employment** in every financial year to adult members of **any rural household willing to do public** work-related unskilled manual work at the statutory minimum wage.
- The **Ministry of Rural Development (MRD)**, Govt. of India is monitoring the entire implementation of this scheme in association with state governments

Aim

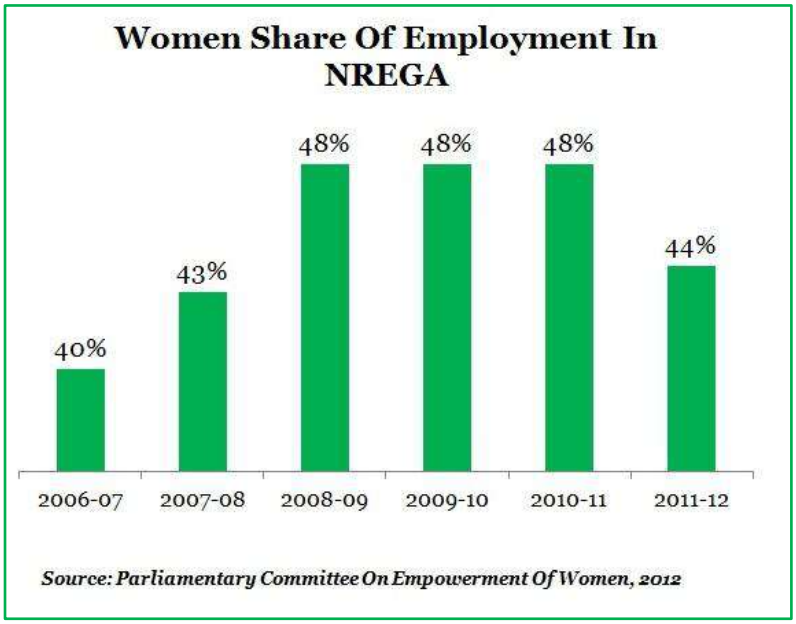
- Improving **the purchasing power of the rural people**, primarily semi or un-skilled work to people living below poverty line in rural India.
- It **attempts to bridge the gap between the rich and poor** in the country.
- **Roughly one-third of the stipulated work** force must be women.
- Social **Audit of MGNREGA works is mandatory**, which lends to accountability and transparency.
- MGNREGA works **address the climate change vulnerability** and protect the farmers from such risks and conserve natural resources.

Features

- The Gram Panchayat registers households after making enquiry and issues a job card.
- The employment will be provided within a radius of 5 km: if it is above 5 km extra wage will be paid.
- Within 15 days of submitting the application or from the day work is demanded, wage employment will be provided to the applicant.
- MGNREGA provides "Green" and "Decent" work.
- The Gram Sabha is the principal forum for wage seekers to raise their voices and make demands. It is the Gram Sabha and the Gram Panchayat, which approves the shelf of works under MGNREGA and fix their priority.

Success of MGNREGA

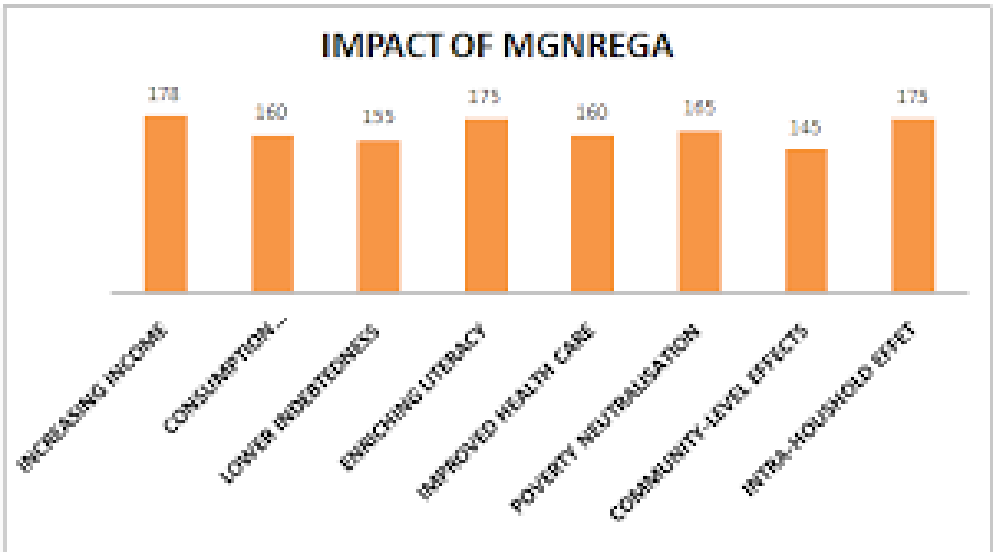
- **Reduced the distress in agriculture & economy** due low agricultural productivity & small land-holding size thus provided them better livelihood opportunities.
- Most of MGREGA work is **directed towards building irrigation canals, tanks** etc. thus provides resources base for further rural development.
- It has **reduced rural distress & intensive urban migration**.
- The provisions like work up to 5 km from home, equal wages promotes women empowerment, gender parity & directed towards backward section of society.



- The **programme has generated over 1,980 crore person-days**. In the short span of 10 years that the Act has been in existence, it has generated 19.86 billion person-days of employment benefitting 276 million workers, with more than half the jobs going to women workers and almost a 3rd to members of scheduled castes and scheduled tribes.

- It has resulted **into social upliftment for all sections including SC/**ST. The percentage of Scheduled Caste workers benefitted under the scheme has consistently been about 20% and of Scheduled Tribe workers has been about 17%.
- The **legislation has reduced distress migration in traditionally migration**-intensive areas.
- MGNREGA has played a much larger **role in revitalizing the labour market in rural areas**. Not only has it led to the creation of a class of workers who are using the MGNREGA as a safety net, but also these workers are also able to use it as a bargaining tool for extraction of higher wages.

Challenges



- **Ridiculously low wage rate:** Currently, MGNREGA wage rates of 17 states are less than the corresponding state minimum wages.
- **Insufficient budget allocation:** MGNREGA's success at the ground level is subject to proper and uninterrupted fund flow to the states.
- **Regular payment delays:** The Union Ministry of Rural Development considers wages paid once the FTO (Fund Transfer Order) is signed by the second signatory. However, delays take place even in the processing of signed FTOs, for which the Management Information System (MIS) does not calculate compensation.
- **Workers penalised for administrative lapses**: The ministry withholds wage payments for workers of states that do not meet administrative requirements within the stipulated time period
- **The banking puzzle:** The rural banks are highly de-capacitated in terms of staff and infrastructure and thus always remain hugely crowded. The workers normally have to visit the banks more than once to withdraw their wages.
- **Faulty MIS data**: The increase in corruption and weakening accountability has roots in the excessive dependence of implementation of MGNREGA on technology (real-time MIS being one of them). There is a growing pile of evidence on how real-time MIS has made MGNREGA less transparent for workers, reduced accountability of frontline functionaries and aided in centralisation of the programme.
- **Non-payment of unemployment allowance**: There are a huge number of unemployment allowances being shown in the MIS currently.
- **Genuine job cards being deleted to meet 100% DBT targets:** Genuine job cards are being randomly deleted, as there is a huge administrative pressure to meet 100 per cent Direct Benefit Transfer (DBT) implementation targets in MGNREGA.
- **Too much centralisation weakening local governance:** A real-time MIS-based implementation and a centralised payment system has further left the representatives of the Panchayats Raj Institutions with literally no role in implementation, monitoring and grievance redress of MGNREGA schemes.
- **Administration not honouring local priorities:** MGNREGA could be a tool to establish decentralised governance. However, with the administration almost dictating its implementation, it is literally a burden now for the people and especially for the local elected representatives.

Government Reforms

- **Geo MGNREGA** is a path breaking initiative that uses space technology for geo-tagging all assets created under MGNREGA for improved planning, effective monitoring, enhanced visibility and greater transparency.
- **Direct benefit transfer:** To further streamline the fund flow mechanism and bring down delay in payment of wages, the Ministry of Rural Development has implemented National Electronic Fund Management System (NeFMS) in 21 States and 1 Union Territory.
- Initiative has been taken to simplify MGNREGA through issuance of Annual Master Circular (AMC) for FY 2016-17 by superseding 1039 circulars/advisories issued earlier.
- Reduction in number of Registers being maintained at Gram Panchayat level to seven simplified Registers from an average of 22 Registers has been implemented.
- The programme is progressing towards a more independent and empowered system of Social Audit and Internal Audit to ensure growth with accountability through a trained community cadre of social auditors drawn from women SHGs.
- The Ministry has taken up skill development of the MGNREGA workers through initiatives like Bare Foot Technicians and Project LIFE(Livelihood in Full Employment) in order to move them up the skilling ladder.

PLANNING FOR FUTURE WAVES OF PANDEMIC

GS-II SOCIAL JUSTICE

Context

- WHO has predicted that India will witness many more Covid waves. India needs to gear up all its resources to better prepare for them.

Reasons behind Poor response to 2nd wave

- There is a lack **of clear, transparent data on no of cases** and no of deaths. It makes prediction difficult.
- **Under-reporting and manipulated data** lead to faulty projections.
- **Building containment and mitigation measures were missed** early in Maharashtra when it was reeling under 2nd wave.
- **Not Undertaking genome sequencing** when Punjab, Maharashtra and Kerala was reeling under outbreak resulted in delayed lockdowns. Earlier genome sequencing would have alerted the administrators about the lethality of the virus thus leading to earlier lockdowns.
- **Lack of front-line public health workforce in urban areas**, while limitation of critical care capacity (oxygenated beds, ICUs) in rural areas exacerbated the crisis.
- **Complacent Attitude:** Indian legislators along with people showed complacency even during the rise of corona by holding election rallies and Kumbh Mela. These became super spreader events.

Steps for Future

Surveillance Strategy

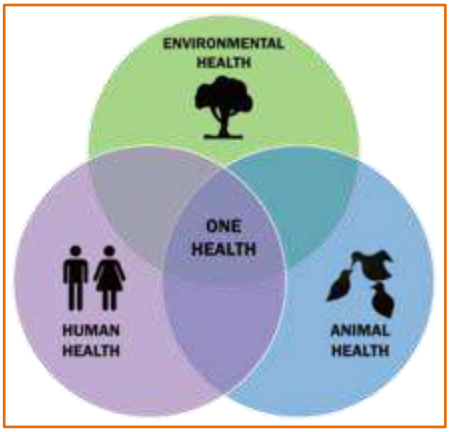
- The Central and State government **should use real-time data by encouraging reliable reporting** and initiating standardised definitions.
- **Public trust needs to be instilled in the surveillance system** by detecting the minimum number of cases.
- India needs to **develop a reliable testing strategy** which does not change when there is a surge in cases.
- Review mechanisms **should be strengthened to detect the outbreak** in the initial stages.
- India needs to **undertake concurrent genomic sequencing in real-time** in the fixed proportion of samples for an idea of the likelihood of the variants causing several outbreaks.

Vaccinations

- India must **encourage western companies to undertake contract manufacturing** of vaccines in India to ease out the supply burden.
- India needs to **fast-track the manufacturing of all vaccines** which have been approved for use.
- Vaccines need **to be constantly updated** to deal with the newer variant concerns.

One- Health agenda

- The 'One Health' approach recognises that people's health is closely connected with animals' health.
- Since most of the infectious diseases are zoonotic in nature, Preparedness for and mitigation of such events require a 'One Health' approach.
- India is one of the four global hotspots for the emergence of zoonotic diseases, it makes one's health more urgent in Indian context.



Robust Public Health Workforce

- It is an **essential to hire front-line workers in public health** who can engage in surveillance and contract-tracing.
- We need enough public health workforce to **mobilise people for primary healthcare services**, including vaccination.
- India needs to **hire one Accredited Social Health Activist (ASHA) worker** for every 1,000 people, an Auxiliary Nurse Midwife (ANM) and nurse practitioner are hired for every 5,000 people.
- India needs to have a hospital with at least 100 beds, including beds with

emergency and critical care services, caters to a population of 30,000-50,000.

Conclusion

- We need to improve the health system and public health and regularly review plans to ensure that we prevent future disasters.

COVID 19 AND WOMEN

GS-II SOCIAL JUSTICE

Context

- **Women workers have borne a disproportionate burden of the Covid 19.**

Data

- According to the Centre for Monitoring Indian Economy, 61% of male workers were unaffected during the lockdown while only 19% of women experienced this kind of security.
- 47% of employed women who had lost jobs during the lockdown, had not returned to work.
- Nearly half of the women workers withdrew from the workforce.

Covid Impact

- **Low Earnings:** Women are more likely to enter as daily wage workers while men found avenues for self-employment. Daily wage work is typically far less remunerative than self employment as on average. Hence, women are likely to be at very low earnings compared to men. Covid had disrupted the daily wages by closing of the MGNREGA works, construction works which impacted the lower earnings of women.
- **Lost work disproportionately Compared to Men:** Women tended to lose work disproportionately irrespective of the industry in which they were employed. For instance, the share of women in job losses in education was three times their share in that industry.
- **Increased Household responsibilities:** household responsibilities increased for women because everyone was limited to the confines of their homes. According to The India Working Survey 2020, the number of hours spent in domestic work increased manifold for women.
- **Layoffs:** The first round of layoffs has been particularly acute in the services sector, including retail, hospitality and tourism, where women are overrepresented.
- **Lack of Social Security:** Vast majority of women's employment – 70 per cent – is in the informal economy with few protections against dismissal or for paid sick leave and limited access to social protection.
- **Poverty:** The impacts of the COVID19 global recession will result in a prolonged dip in women's incomes and labor force participation, with compounded impacts for women already living in poverty.

Way Forward

- Expansion of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and the introduction of an urban employment guarantee targeted to women.
- **Creation of women employment through setting up of community kitchens,** prioritising the opening of schools and anganwadi centres, and engagement with self-help groups for the production of personal protective equipment kits.
- **Setting up a COVID-19 hardship allowance of at least □5,000 per month** for six months for 2.5 million accredited social health activists and Anganwadi workers.
- Sectors where women are a large proportion of workers, and where supply chains have been disrupted, should have **adequate access to credit, loans, grants so they can retain the female workforce.**
- The whole range of economic policies – for both immediate response and long-term recovery – need to be designed and implemented with a gender lens.

- Access to benefits such as health insurance, paid sick and maternity leave, pensions and unemployment benefits need to reach beyond formal employment and be accessible to women in all spheres of work.
- **Integrate a gender assessment in all country assessments to understand the impact of COVID-19 on women and girls**, including economic impact, and how to address it effectively.

HEALTHCARE INFRASTRUCTURE IN INDIA

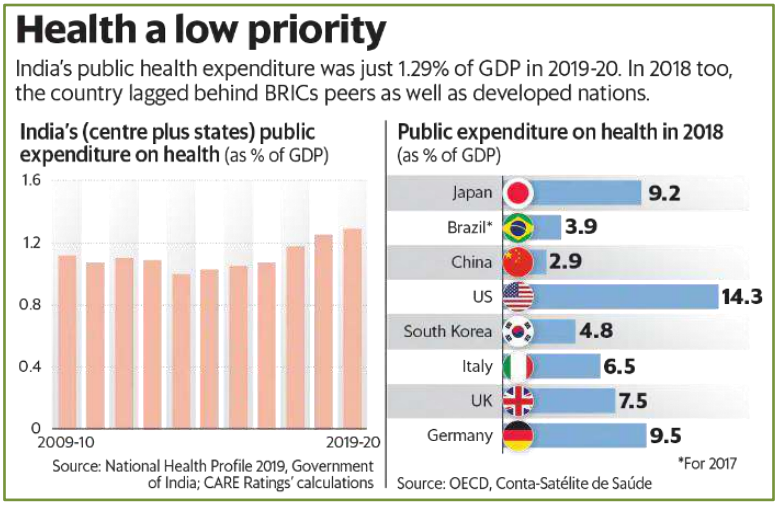
GS-II SOCIAL JUSTICE

Context

- The health crisis brought out by the pandemic has exposed the issues of the healthcare system in India.

Status of Healthcare infrastructure in India

- India **had 85.7 physicians per 1,00,000 people in 2017** (in contrast to 98 in Pakistan, 100 in Sri Lanka and 241 in Japan).
- **53 beds per 1,00,000 people** (in contrast to 63 in Pakistan, 79.5 in Bangladesh, 415 in Sri Lanka and 1,298 in Japan).
- **172.7 nurses and midwives per 1,00,000 people** (in contrast to 220 in Sri Lanka, 40 in Bangladesh, 70 in Pakistan, and 1,220 in Japan).
- India has among the highest out-of-pocket (OOP) expenditures of all countries in the world- 62% of the total health expenditure in India is OOP.


Health a low priority
India's public health expenditure was just 1.29% of GDP in 2019-20. In 2018 too, the country lagged behind BRICs peers as well as developed nations.
India's (centre plus states) public expenditure on health (as % of GDP)
1.6
1.2
0.8
0.4
0
2009-10
2019-20
Source: National Health Profile 2019, Government of India; CARE Ratings' calculations
Public expenditure on health in 2018 (as % of GDP)
Japan 9.2
Brazil* 3.9
China 2.9
US 14.3
South Korea 4.8
Italy 6.5
UK 7.5
Germany 9.5
*For 2017
Source: OECD, Conta-Satélite de Saúde

Lower Spending by the government

- India has very low public spending on health (barely 1% of GDP).
- Though India's public spending on health is about to double within the 2021-22 fiscal year , it continues to stay grossly inadequate in comparison to the amount in other similar developing nations.

High out of pocket expenditure:

- The share of 'out of pocket' (OOP) health expenditure (of total health spending) in India was over 60% in 2018.
- Medical expenses constitute the main reason for private debt in India and have pushed many into poverty.
- According to the Economic Survey, The OOPE, as a share of total health expenditure, drops precipitously when public health expenditure increases.
- An increase of public spending to 2.5% of GDP can decrease the OOPE from 65% to 30% of overall healthcare spend.

Regional inequality

- India's **fragmented, urban-centred, variably functional and grossly underfunded** primary health centres and elite-focused healthcare system cater to only a little section of the population.
- In certain **rural areas, the doctor-population ratio is over 1:40,000**.
- Kerala and Delhi have been close to the top in all the years.
- **Bihar, Jharkhand and Uttar Pradesh have been consistently** towards the bottom of the ranking in all years.

Lack of regulation of personal health sector

- The private health sector in India is poorly regulated in practice.
- Some private healthcare providers have objected to public authorities' orders on widened patient access during the continued health crisis.

Way Forward

According to this year Economic Survey:

- **Flexibility in Healthcare:** for enabling India to respond to pandemics, the health infrastructure **must incorporate flexibility as events requiring healthcare** attention may not repeat in identical fashion in future.
- **Increase in Public Spending**: an increase in public spending from 1% to 2.5-3% of GDP — as envisaged in the National Health Policy 2017.
- India can **think of constituting a national medical service on the lines of UK**.
- Regional equity can be **achieved by giving targeted funding by finance commission** to the laggard states.

Case Studies

Brazilian Approach

- Brazilian constitution has a declaration of Right to Health as Fundamental Right in order to ensure greater commitment of the government towards health, there is a need to include health as a constitutional and fundamental right as provided under Brazilian constitution.

The Kerala (India) Experience

- In 1996, the government of the state of Kerala gave 40% of its budget to the rural Panchayats , and the freedom to plan and provide for the needs in their villages.
- This led to some positive changes as the money was used for the betterment of all the facilities in the village.
- For example: proper planning was done for water supply ,healthcare , education, working of schools, etc.

Costa Rica Approach

- Many years ago, the Costa Rican government took a very important decision of not having a national army.
- This meant that all the money which was used to manage the army could be used for other, more useful projects such as health, education, and meeting other basic needs of the people.
- The Costa Rican government took this step because it believes that a healthy population is the most important factor in the development of any country.

British National Health Service

- The service is funded entirely from general taxation and therefore the general public receive treatment solely consistent with their clinical needs with none exception.
- The system includes payment to general practitioners, most of whom remain private providers but are paid by the state for treating NHS patients.
- All hospital treatment and medicines are free, as are outpatient and follow-up appointments. Only a proportion of patients in England need to buy prescription items.
- The NHS is that the largest employer within the U.K. Its current budget is about 7.6% of GDP, and it provides highly localised access to worry.
- It has resulted within the provision of top-class universal healthcare, including training and research.
- It integrates preventive and curative medicine in the least levels.

Conclusion

- Health of a nation depends critically on its citizens having access to an equitable, affordable and accountable healthcare system.

Context

- The novel coronavirus pandemic has accelerated the existing inequalities in the field of economy, health and education.

Increase in Economic Inequality

- People whose jobs and salaries are protected, face no economic fallout. **The super-rich have even become richer.**

Increase in Educational Inequality

- Surveys by the National Council of Educational Research and Training (NCERT), the Azim Premji Foundation, ASER and Oxfam suggest **that between 27% and 60% could not access online classes due to lack of devices, shared devices, inability to buy "data packs"**.
- **Lack of stable internet connectivity** also affected the learning process.
- **Lack of learning ecosystems**: many lack a learning environment at home: a quiet space to study. 25% Indians lived in single-room dwellings in 2017-19. If between two and four people share a single room, how can a child study? Girls bore additional expectation of doing the domestic chores.
- **Peer learning has also suffered**. Students are not able to learn through interaction with their peers due to online education.

Inequality in Health Sector

- Given the challenges posed by the **current health crisis in the form of shortage of essentials: drugs, hospital beds, oxygen, vaccines, etc**, the focus of the administration seems to be on increasing digitization of the sector. Example: Efforts being made at developing apps like CoWIN.
- The use of CoWIN to book a slot makes it that **much harder for those without phones, computers and the Internet.**
- Also, the website is **only available in English** which limits its usefulness for the non-English speaking population in India.
- **Platform- and app-based solutions can exclude the poor entirely**, or squeeze their access to scarce health services further.
- **Privacy Concern:**
  - Experts have voiced their concerns **over the attempts to use the pandemic to create an infrastructure for future exploitation** of people's data. The digital health ID project with a centralised database model is being pushed during the pandemic.
  - Given that **India lacks a data privacy law, it is very likely that health records will end up with private entities without the data owner's** consent, even weaponized against them (e.g., private insurance companies may use it to deny poor people an insurance policy or charge a higher premium).
- **Only problems and no solutions:** Digital "solutions" create additional bureaucracy for all sick persons in search of these services without doing enough to punish the overcharging private hospitals or people indulging in hoarding and black marketing.

Way Forward

- Need to increase health expenditure on basic health services.
- Digital solutions only seem to be obfuscating and distracting us from the real problem. The health sector needs policy, not technocratic solutions.
- The pandemic should nudge us to be more discerning about which digital technologies to embrace especially in sectors like education and health which are critical for social mobility in a society like India.

Context

- POSCO act has often been criticised in being ineffective to solve the abuse of children.

Provision of POSCO act:

- The POCSO Act was **enacted in 2012 and is gender neutral** — it recognises that boys can be victims of sexual violence as well.
- It defines a child as someone under the age of 18.
- It also specifically **lays down stringent punishment for exposing children to**, or using them to create child sexual abuse material.
- The law **lays down the procedures for reporting sexual crimes** against children.
- It places t**he burden of proof on the accused, following 'guilty until proven innocent' unlike the IPC**.

Data on Child Abuse:

- Half of the country's children face some form of sexual abuse with 18.3 percent were physically abused and 8.6 percent were sexually abused in 2017.
- A national estimate of 1,720 children died from abuse and neglect in fiscal year 2017 compared to 1,750 children who died in fiscal year 2016.

Challenges with the act:

- **Lack of complaint: Most of the victims experience the terrific social humiliation** and feelings of shame and guilt when they report that they are sexually assaulted. It either delays or leave out a no of victims.
- **Lack of awareness:** Parents or guardians often do not have the knowledge to safeguard their children either by educating the children about sexual abuse or by being watchful in order to prevent abuse on their children.
- **Poor rate of conviction:** POSCO act is plagued by low rate of conviction. It was 14% in 2014 and 18% in 2018.
- Many states **have not complied with the provisions of the act as** they have not established the special children courts.
- The act d**oesn't cover all aspects of the crime against the children**. It doesnt cover cyber bullying and other types of online crime against children.
- **Ineffective training of the public prosecutors** have often led to acquittal of the perpetrator.

Way Forward

- M**ore awareness need to be generated** in order to make more children come forward for their child abuse.
- **Proper training of police, forensic staff and public prosecutor**s need to be put in place for enhancement o the conviction rate.
- the introduction of **sex education in schools** and educating the children about good touch and bad touch is significant**.** In **2008-09 Parliamentary committee report** mentions the introduction of sex education, but it never materialized**.** It has to be implemented.
- The **Supreme Court issued a direction to set up special courts within 60 days** on the districts that are having more than 100 pending POCSO cases. This has to be implemented urgently.

Difference between Section 8 of the POCSO Act and Section 354 of IPC

Section 8 of the POCSO Act	Section 354 of IPC
This section is gender-neutral	This section is only for women and not for male or transgender child
Punishment can be a minimum sentence of 3 years and may extend to the maximum sentence of 5 years	Punishment shall not be less than one year but it may extend to five years

Context

- By the recent pandemic, education has shifted online.

Central government Guidelines for Digital Education

- School can hold live online classes for a maximum of 1.5 hours per day for Classes 1-8.
- For kindergarten, nursery and pre-school, only 30 minutes of screen time per day for interacting with parents.
- School can conduct Three hours per day for Classes 9-12
- It Advices schools to first survey their own students before making decisions about the mode of teaching.
- Children exposed to digital technologies or gadgets for a longer time are prone to severe health issues.
- "Asynchronous learning" with tools to allow students to download lessons.
- guidelines include eight steps of digital learning that is, Plan- Review- Arrange- Guide- Yak (talk)- Assign- Track- Appreciate.
- These steps guide the planning and implementation of digital education step by step with examples.
- The Guidelines also emphasize the need to unify all efforts related to digital, online education, benefitting school going children across the country.
- The initiative includes DIKSHA, SWAYAM Prabha, Radio Vahini and Shiksha Vaani.

Pros of Digital education

- It has **reduction of cost for teachers** and students both. As students do not need to make long commute and **schools do not need to spend much on the infrastructure.**
- It has ensured **continuation of education in this pandemic** maintaining the learning outcomes for the children and securing the future of country.
- It can be **accessed by anybody and anywhere as** the content is hosted on cloud and is available for all.
- It can **make best teachers available across the India** thus overcoming issues of skilled teachers by letting their content available to all. This can help in bridging the serious gap of poor quality of teachers in school.
- Lectures **can be recorded and viewed as per the convenience** of the students. This ensures that children can learn as per his/her convenience.
- It has **helped to mitigate the rigidity of casteism at educational places.** Digital education is available for all without any prejudices of caste and class.

Challenges of Digital education

- It **does not let socialization of children**. Since, children do not go to school, they do not learn how to behave, how to make friends.
- Poor students **having issues of no access to digital medium are left** behind. This will further enhance the inequality prevailing in India. It will lead to undone of years of work done by the government.
- Generally, private schools **are faster to adopt digital education while government schools are lagging behind**. It will further widen the learning gap among public-private institution students.
- It puts **pressure back on the women of the household to teach children**, as they have to sit with their children. This has enhanced the
- In this technological age, efforts are **underway to lure away children from usage of smart gadgets, but online schooling puts them back on smart phone**. It may have long term repercussions on the development of children.

Digital based education programme by Government

1. Swayam

- **An integrated platform for offering online courses and covering school (9th to 12th) to Post Graduate Level.**

- NCERT (National Council of Educational Research and Training) has been developing course modules for school education system in 12 subject areas.

2. Swayam Prabha

- SWAYAM Prabha is an initiative to **provide 32 High Quality Educational Channels through DTH.**
- Curriculum-based course content covering diverse disciplines.

3. National Digital Library

- Project to **develop a framework of virtual repository of learning resources** with a single-window search facility.
- There are more than three crores digital resources available through the NDL.

4. Spoken Tutorial

- 10-minute long, audio-video tutorial, on open source software, to improve employment potential of students.
- The languages are C, C++, Java, PHP, Python, PERL, Scilab, OpenFOAM, OpenModelica, DWSIM, LibreO and many more.

5. E-Yantra

- Project for enabling effective education across engineering colleges in India on embedded systems and Robotics.
- The training for teachers and students is imparted through workshops where participants are taught basics of embedded systems and programming.

Way Forward

- Schools **may reopen in a staggered manner, with hygiene and distancing protocols in place,** and induction should be contingent on testing.
- **Residential institutions like the Navodayas should lead,** since they can seal the perimeter and do not run the continuing risk of spreading presented by daily student traffic.
- Online schooling can only be a support to already existing physical education, but it cannot replace the schooling system.
- Government focus **must be on quick vaccination of the all,** which would enable opening up of the schools.

CHILD MARRIAGE

GS-II SOCIAL JUSTICE

Context

- The pandemic has caused a spike in child marriages.

Meaning of Child Marriage

- Child marriage can be described as a formal marriage or an informal union entered into by an individual before attaining the prescribed eligible age which is 18 years for girls and 21 years for boys.

Data of Child Marriage

- India is estimated to have over 24 million child brides.
- 40% of the world's 60 million child marriages take place in India according to the National Family Health Survey.
- India has the 14th highest rate of child marriage in the world, according to the International Center for Research on Women.
- Marriage systems and practices vary by region, caste and tribe.
- Rates of child marriage are higher in the North-West and lower in the South-East of the country.
- The states with the highest rates of child marriage (50% and above) are Bihar, Rajasthan, Jharkhand, Uttar Pradesh, West Bengal, Madhya Pradesh, Andhra Pradesh and Karnataka.

Effects of child marriage

- Girls who get married at an early age are **often more susceptible to the health risks associated with early sexual initiation and childbearing,** including HIV and obstetric fistula.

- Young girls who lack status, power and maturity are **often subjected to domestic violence, sexual abuse and social isolation.**
- Early marriage almost always **deprives girls of their education or meaningful work,** which contributes to persistent poverty.
- Child **Marriage perpetuates an unrelenting cycle of gender inequality,** sickness and poverty.
- Getting the girls married at an early age when they are not **physically mature, leads to highest rates of maternal and child mortality.**

Reasons for early / child marriages

- **Poverty:** Most marriages happen as parents find their children burden specially the girls. Poor people marriage off their daughter to improve their conditions.
- **Low level of education of girls:** Low level of education ensures that girls are often not able to resist the pressure of child marriage. They consider themselves as burden on the family and do not understand the whole challenges associated with the child marriage.
- **Social customs and traditions:** Child marriages are an accepted norm by the culture. Most families consider it morally right to marry off their children.
- **Inadequate Implementation of the Law:** Child marriage restraint act, enacted to prevent child marriage has not been implemented with letter and spirit. Generally the local police and administration remains in hand in hand with the local society which negates the impact of law.

Law on Child Marriage in India

- Child marriage is prohibited in India as per the Prohibition of Child Marriage Act, 2006.

Objective of law

- allows anyone who was a child at the time of getting married to legally undo it;
- provides for maintenance for the girl in a child marriage;
- treats children born out of child marriages to be legitimate, and makes provisions for their custody and maintenance; and
- considers certain kinds of child marriages where there was force or trafficking as marriages which never happened legally.

Crimes under the law

- for an adult male to marry a child wife;
- to perform or help with a child marriage in any way;
- to allow, encourage or fail to stop a child marriage (as a parent or guardian); and
- to attend or take part in a child marriage (as a parent or guardian).

Means of Implementation

- One can **directly go to a** District Court **and make an application** – the judge can pass an order directing the people involved to not take part in the child marriage.
- One can go to a **Child Marriage Prohibition Officer** for help with annulling a child marriage.

Way Forward

- Government needs to **work alongside civil society and local government to alter the existing social customs** and ethos.
- **Female literacy needs to be enhanced.** Construction of girls toilets through Swachh Bharat Abhiyan, conditional cash transfers by many state government can help in mitigating it.
- The basic root of child marriage is poverty. **Enhancing per capita income through decentralised development and rapid industrialisation of the economy** can make significant dent in the child marriage.

Context

- Social security code hasn't been effective in providing the basic security to the vast 91% informal workers.

Concept of Social Security

- According to International Labour Organisation," Social security is the protection that a society provides to individuals and households to ensure access to health care and to guarantee income security, particularly in cases of old age, unemployment, sickness, invalidity, work injury, maternity or loss of a breadwinner".
- **Economists Amartya Sen and Jean Dreze distinguish two aspects of social security —"protection" and "promotion."** While the former denotes protection against a fall in living standards and living conditions through ill health, accidents, the latter focuses on enhanced living conditions, helping everyone overcome persistent capabilities deprivation.

Constitutional Basis for Social Security

- The following social security issues are mentioned in the Concurrent List (List III in the Seventh Schedule of the Constitution of India):
  - Item No. 23: Social Security and insurance, employment and unemployment.
  - Item No. 24: Welfare of Labour including conditions of work, provident funds, employers' liability, workmen's compensation, invalidity and old age pension and maternity benefits.
- Part IV Directive Principles of State Policy:
  - Article 41: Right to work, to education and to public assistance in certain cases. The State shall, within the limits of its economic capacity and development, make effective provision for securing the right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, and in other cases of undeserved want.
  - Article 42 Provision for just and humane conditions of work and maternity relief. The State shall make provision for securing just and humane conditions of work and for maternity relief.

Provisions of Social Security Code-2020

- The Code on Social Security 2020 (Code), subsumes nine regulations relating to social security, retirement and employee benefits, such as (i) The Employees Compensation Act, 1923, (ii) The Employees State Insurance Act, 1948, (iii) The Employees Provident Fund and Miscellaneous Provisions Act, 1952, (iv) The Employees Exchange (Compulsory Notification of Vacancies) Act, 1959, (v) The Maternity Benefit Act, 1961, (vi) The Payment of Gratuity Act, 1972, (vii) The Cine Workers Welfare Fund Act, 1981, (viii) The Building and Other Construction Workers Cess Act, 1996, and (ix) The Unorganized Workers' Social Security Act, 2008).
- **Enhanced coverage:** The Code has widened coverage by including the unorganised sector, fixed term employees and gig workers, platform workers, inter-state migrant workers etc., in addition to contract employees.
- **Uniform definitions:** Uniformity in determining wages for the purpose of social security benefits is another highlight. Specific exclusions with ceilings have been provided for discouraging inappropriate structuring of salaries to minimise social security benefits.
- **Consultative approach:** Unlike the existing role of inspectors, the Code provides for an enhanced role of inspector-cum-facilitator whereby employers can look for support and advice to enhance compliances.
- **Career Centre:** To enable that demand for human resources is met and to monitor employment information, career centres will be established.
- **Digitization:** As per the Act, all records and returns have to be maintained electronically. Digitisation of data will help in exchange of information among various stakeholders / funds set up by the Government, will ensure compliance and also facilitate governance.

- **Stringent penalties:** The Code captures it all. Any failure to deposit employees' contributions not only attracts a penalty of Rs 100,000, but also imprisonment of one to three years.

Key Challenges with the Act

- **Maternity Benefit:** Women engaged in the unorganised sector remain outside the purview of maternity benefit.
- **Employees Provident Fund**: For informal sector workers, access to employees' provident fund remains unfulfilled too in the new code.
- **Payment of Gratuity:** Although payment of gratuity was expanded in the new Code, it still remains inaccessible for a vast majority of informal workers.
- **Fragmented Approach:** It has 2 different versions for organized and unorganized workers separately.
- **Absence of definition:** The absence of definite and unambiguous provisions in the present code would further complicate achievement of universal registration

Challenges Faced by Informal Workers in accessing the Social Security

- **Registration barrier**: To avail social security, an informal worker **must register herself on the specified online portal** to be developed by the central government.
- **Lack of awareness:** Experience shows that there is an awful lack of awareness among informal workers regarding social security schemes.
- **Lack of digital literacy:** Online registration places a further challenge as most informal workers lack digital literacy and connectivity.
- **Lack of documents:** Informal workers also find it difficult to furnish all documentary papers required **as part of the registration process.**
- Furnishing proof of livelihood and income details in the **absence of tangible employer-employee relations is very difficult.**
- Such requirements deter informal workers from completing the registration and they continue to remain outside the social security ambit.

Way Forward

- **Employers should be made to own up to the responsibility of providing social security** to their workers.
- **Inter-State cooperation:** As unorganised workers are spread across the length and breadth of India, **inter-State arrangement and cooperation** becomes imperative.
- **Universal coverage:** All unorganised workers should have **basic social security coverage,** irrespective of labour market classifications.

HALLMARKING

GS-II SOCIAL JUSTICE

Context

- The Centre further extended the deadline for mandatory hallmarking of gold jewellery and artefacts by a fortnight till June 15 in view of the COVID-19 pandemic

Gold Hallmarking

- Gold hallmarking is a purity certification of the precious metal and is voluntary in nature at present.
- Hallmarking is the accurate determination and official recording of the proportionate content of precious metal in precious metal articles.
- In India, at present two precious metals namely gold and silver have been brought under the purview of Hallmarking.

- BIS through its network of Regional/ Branch Offices all over the country operates the Hallmarking Scheme for gold and silver jewellery.
- PramodTewari Committee, has been formed to ensure proper coordination and resolve the implementation issues.
- The BIS has been running a hallmarking scheme for gold jewellery since April 2000. Around 40 per cent of gold jewellery is being hallmarked currently.

Significance of this move

- The hallmarking of jewellery/artefacts is required to enhance the credibility of gold jewellery and customer satisfaction through third party assurance for the marked purity/fineness of gold.
- This step will help to develop India as a leading gold market center in the world.
- The mandatory hallmarking will protect the public against lower caratage and ensure consumers do not get cheated while buying gold ornaments and get the purity as marked on the ornaments.

About Bureau of Indian Standards

- The Bureau of Indian Standards (BIS) is the national Standards Body of India working under the aegis of Ministry of Consumer Affairs, Food & Public Distribution, Government of India.
- The Bureau of Indian Standards Act, 1986, establishes it.
- The Minister in charge of the Ministry or Department having administrative control of the BIS is the ex-officio President of the BIS.
- BIS has been providing traceable and tangible benefits to the national economy in a number of ways –
- providing safe reliable quality goods;
- minimizing health hazards to consumers;
- promoting exports and imports substitute;
- control over proliferation of varieties etc. through **standardization, certification and testing.**

Different Quality Marks

ISI MARK

- Any product that has **the ISI mark is supposed to be of minimum standard and safe for use by consumers.**
- The ISI mark is **both mandatory and voluntary.** Some mandatory ISI certification products include cement, electrical appliances, LPG cylinder, Batteries, Oil pressure stove, Automobile Accessories, Medical equipment, steel products, Stainless Steel, Chemicals, Fertilizers, infant foods and packaged drinking water.

AGMARK

- **Directorate of Marketing and Inspection, an agency of the Government of India, do the Agmark certification** of agricultural commodities for the benefit of consumers and producers/manufacturers.
- There are **some 205 different commodities including Pulses, Cereals, Essential Oils, Vegetable Oils, Fruits** and Vegetables, and semi-processed products that have to have an AGMARK.
- The scheme is **legally enforced by Agricultural Produce (Grading & Marking) Act, 1937.**

VEGETARIAN AND NON-VEGETARIAN MARKS

- As per **Food Safety & Standards (Packaging & Labelling) Regulations, 2011.**
- Provided also that the provisions of above regulation **shall not apply in respect of mineral water or packaged drinking water or carbonated water** or alcoholic drinks, or liquid milk and milk powders.

BEE' STAR LABEL MARK

- In 2006, the **Bureau of Electrical Efficiency (BEE) of Ministry of Power, Government of India, launched a scheme for BEE** star on labels.

- The BEE star label has been **applicable for following electrical products: To sell mandatory products, a minimum 1 Star rating is mandatory.**

HANDLOOM MARK

- The Government of India **introduced the Handloom Mark scheme to promote handloom products in the domestic and international markets** and to provide assurance to consumers about the genuineness of handloom products.
- A consumer having any doubt about the authenticity of a product labelled with Handloom Mark **can approach the Textiles Committee of Government of India with a copy of the bill** and the code number of the mark.
- The mark is in two forms: **the one for domestic use has the word 'handloom' written beneath the logo, and the one for international marketing** has the same logo with the words 'hand woven in India' written beneath it.

ECOMARK

- Eco mark is a certification **mark issued by the Bureau of Indian Standards (the national standards organization of India) to products** conforming to a set of standards aimed at the least impact on the ecosystem.
- This is not a mandatory quality mark but is advisory.

FSSAI

- FSSAI is not an obligatory certification mark **but it signifies that food is hygenic and meets the approved safety standards set for food ite**ms under the Food Safety and Standards (FSS) Act, 2006 .

ISEER (Indian Seasonal Energy Efficiency Ratio)

- The Bureau of Energy Efficiency (BEE) has introduced a new star-rating methodology called Indian Seasonal Energy Efficiency Ratio (ISEER) for air conditioners.
- This methodology factors in variance in higher temperatures in India and rates air conditioners accordingly.

Context

- A virtual India-EU leaders meeting was held between Indian Prime Minister and 27 EU leaders.

Summary of Joint Statement

- **India-EU Strategic Partnership**
  - India and the EU have a common interest in ensuring **security, prosperity and sustainable development in a multi-polar world**.
  - Both agreed to foster new synergies for **2030 Agenda for Sustainable Development** and the **Paris Agreement.**
- **Global health preparedness and resilience**
  - Defeating the COVID-19 pandemic through **global cooperation and solidarity** remains our priority.
  - Both agreed to cooperate on resilient medical supply chains, vaccines and the Active Pharmaceutical Ingredients.
  - The EU invited India to work towards an **international treaty on pandemics**.
- **Protecting our planet and fostering green growth**
  - The EU invited India to consider the endorsement of the **Leaders' Pledge for Nature** and the effective engagement with like-minded countries on negotiations on a **Global Plastics Agreement**.
  - They welcomed the first meeting of the **India-EU High-Level Dialogue on Climate Change.**
  - The Dialogue provided an opportunity to mark our strengthening cooperation under the **India-EU Clean Energy and Climate Partnership.**
- **Trade, Connectivity and Technology**
  - They welcomed the holding of the first two meetings of the **High-Level Dialogue on Trade and Investment**.
  - They agreed to set up an **India-EU Senior Officials' Dialogue** to deepen bilateral cooperation on WTO issues.
  - They launched a sustainable and comprehensive Connectivity Partnership that upholds international law, conforms with international norms and affirms the **shared values of democracy, freedom, rule of law and respect for international commitments.**
  - Both look forward to the early operationalisation of the **Joint Task Force on Artificial Intelligence**.

Background of India-EU Relations:

- Relations between the European Union and the Republic of India are currently defined by the **1994 EU-India Cooperation Agreement**.
- **Trade**
  - The EU is **India's largest trading partner** with 12.5% of India's overall trade between 2015 and 2016.
  - India is the EU's **9th largest trading partner** with 2.4% of the EU's overall trade.
  - **France, Germany and the UK** collectively represent the major part of EU-India trade.
- **Free trade negotiations**
  - India and the EU have been working on a **Broad-based Trade and Investment Agreement (BTIA)** since 2007.
  - **Issue:** manufacture of generic drugs, greenhouse gas emissions, civil nuclear energy, farming subsidies, regulation & safeguards of the financial sector, cooperation on tax evasion, overseas financing of NGOs in India.
- **India-EU Summits**
  - The **first India-EU summit**, held in Lisbon 2000 laid the **roadmap for future partnership**.
  - The **fifth India-EU Summit** upgraded the relations to that of **strategic partnership**.
- **Maritime Cooperation**
  - The **Joint Action Plan** adopted in 2005, highlighted and emphasized on maritime cooperation.
  - Both India and the EU have stressed on the idea of freedom of navigation, maritime piracy, and adherence to **United Nation Conventions on the Law of the Sea (UNCLOS)**.

- **Climate Change**
  - India-EU relations have witnessed a commitment of international agreements such as the **Kyoto Protocol and the Paris agreement**.
  - They have been collectively pushing for a **comprehensive framework for global governance on climate change**.
- **Data Protection and Regulation**
  - The **Roadmap 2025 document** for the first time reflected the need to build effective cooperation on data protection and regulation.
- **People-to-People Contacts**
  - The India-EU Forum has emerged as an **important Track II forum** for discussion between policy analysts on both sides.
  - It is led by the **European Union Institute for Security Studies** and the **Indian Council of World Affairs** and includes participation from academics and think-tanks.

Issues in the Relation

- **Trade**
  - India's exports of products such as textiles, inorganic and organic chemicals, gems and jewellery, iron, steel and their articles, base metals and automotives are out of the ambit of EU-GSP benefits.
  - There is a likelihood of **losing EU-GSP benefits** in other categories such as apparel, rubber, electronic items, sports goods and toys due to product graduation.
  - Indian companies find it difficult to access the European markers due to the rising non-tariff barriers in the form of technical regulations, phytosanitary measures, industrial standards, conformity assessments or barriers to services exports.

> **Product graduation** applies when average imports of a product from a beneficiary country exceed 17.5% of EU-GSP imports of the same product from all beneficiary countries over three years.

- **Suggestion**
  - India has an **untapped export potential of $39.9 billion** in the EU and Western Europe.
  - The top products with export potential include apparel, gems and jewellery, chemicals, machinery, automobile, pharmaceuticals and plastic.
  - Lobbying in the EU must be emphasised in order to influence EU's lawmakers. Diplomatic efforts through Indian diaspora and business lobby can help in overcoming these issues.
- **Approach to FTAs**
  - India's negotiation for a **Broad-based Trade and Investment Agreement**, which commenced in 2007.
  - **China** has already negotiated a **comprehensive agreement** on investment.
  - **Suggestion:**
    - ✓ There should also be provisions for aspects such as **investment and non-tariff measures** (NTMs).
    - ✓ India also needs to negotiate on **investment-related aspects** with the EU to enhance bilateral investments and foster stronger value chains, especially in technology-intensive sectors in which the EU has a comparative advantage.
    - ✓ FTAs have some institutional arrangements for NTMs. India should critically review the availability of such arrangements in its negotiations, as also their operationalisation and effectiveness.
- **Chinese Influence**
  - According to the EU Chamber of Commerce's **Business Confidence Survey 2020**, most European businesses are chiefly "in China, for China". This shows the EU's high dependence on Chinese Market.
  - **Suggestion:**
    - ✓ India is a major partner for Europe in supplying medicine and research. It would be equal to the EU and the second largest in the world after China.

- ✓ Common interests in economic aspects can pave the way for a more improved diplomatic relationship between EU and India and help in decreasing China's influence.

- **Human Rights Issue**
  - Abrogation of article 370 and 35A and the passing of Citizenship Amendment Act (CAA), 2019 received considerable attention from the EU. Large number of Members of European Parliament spoke against the possible human rights violation.
  - This deviates from the previous policy of non-interference in matters that are declared to be internal affairs.
  - However, the EU remained silent regarding China's blatant human rights violations in Xinjiang and Tibet. It did not even question the National Security law in Hong Kong.
  - **Suggestion:**
    - ✓ The EU should restrain itself from interfering in internal issues of a country as far as possible. Moreover, it should not be seen as attacking one while ignoring others, especially on the issue of its core value- Human rights and liberalism.

Conclusion

- Post-Brexit EU finds itself in the midst of a growing need for recalibrating ties with its partner countries. Forging stronger ties with the region through a mutually beneficial agreement could help strengthen Indian manufacturing and revitalise the flailing exports.

INDIA - GERMANY

GS-II INTERNATIONAL RELATIONS

Context

- India and Germany mark the 70th anniversary of their diplomatic relations as modern countries this year.

Overview of Sector-wise Relations:

- **Strategic ties:**
  - The India-Germany strategic relationship is **limited by the insignificance** of German geopolitical influence in Asian affairs.
  - Contrary to France and the UK, Germany has **no strategic footprint in Asia**.
- **Trade:**
  - Total trade between India and Germany was $5.5billion in 2004 and $21.6billion in 2013.
  - Indian exports to Germany were $2.54billion in 2004 and $7.3billion in 2013.
  - Indian imports from Germany were $2.92 billion in 2004 and $14.33billion in 2013.
- **Global Geopolitical Reordering:**
  - India and Germany both seek to become permanent members of the **United Nations Security Council**.
- **Defence & Security:**
  - India and Germany maintain an ongoing dialogue in the areas of **commercial maritime security** and cooperation in the field of **anti-terrorism**.
  - The Indian Navy and the German Navy conducted **joint-exercises in 2008** for the first time, following an **anti-piracy co-operation agreement** between the two nations signed in 2006.
- **Cultural & Education cooperation:**
  - Germany helped establish the **Indian Institute of Technology Madras** after both governments signed an agreement in 1956 and increased its **co-operation and supply of technology and resources** over the decades to help expand the institution.
  - Both nations established the **Indo-German Science and Technology Centre in New Delhi** to promote joint research and development in energy, environment, coal and water technologies.

Challenges

- **Hyphenating India-China:** First, for all the differences between India and China, a tendency to "hyphenate" the two persists. Doing business with China is seen to be relatively simpler. India, in contrast, remains a more complex partner to negotiate and conduct business with, despite the quantum leaps it has made in moving up the Ease Of Doing Business in the Modi years.
- **Undue focus on Democracy:** Second, it is commonplace in Germany to point to the flaws in Indian democracy, and thereby deem India an unworthy partner, at least in terms of shared values.
- **Labour and environmental standards:** Labour and environmental standards, followed in India are also a cause of concern for Germany.

Way Forward

De-hyphenate

- China's growing assertiveness along with fundamental differences between China and India, the hyphenation looks rather obsolete.
- Germany would be well-served to remind itself that working with democracies can be slower and messier, but may also turn out to be more rewarding and reliable.

Respecting Indian Form of Democracy

- Flagrant violation of human rights in China, in Xinjiang for instance, is quite a different order of magnitude in comparison from the flaws that we see in the workings of Indian democracy.
- A state of imperfection is true for all democracies, including those within the European Union, and indeed also of the United States.(urges in populism across different parts of the world)
- In this sense, Indian democracy is rich and alive, and its commitment to liberal values (such as pluralism and rule of law) strong.

High-Speed Railways (HSR)

- Germany worked with the Indian railways to produce a feasibility report for an HSR corridor between Chennai-Bengaluru-Mysuru.
- This would strengthen the industrial corridor in that region, and could have considered either an augmentation of existing railway tracks or, as India preferred, a full HSR system, standing on its own.

Strategic Financing Initiative for Asia

- The Strategic Financing Initiative for Asia (SFIA) of 2016 was to compete with the Asian Infrastructure Investment Bank (AIIB) and the Belt and Road Initiative (BRI).
- It is time for Germany to come up with a clear financial proposal which shows exactly how much would be covered by grants, promotional credits, and concessional credits from which India could clearly determine the cost.

Germany as a defence industry partner

- Germany remains keen to provide the six API submarines required by the Indian navy. It would add considerable momentum to the Indo-German partnership.

Germany as a business Location

- Indian corporate entities have invested over EUR 6.5 billion in Germany, especially in sectors of IT, automotive, pharma and biotech.
- Germany lies at the center of Europe and offers not only excellent access to a prosperous market of over 80 million inhabitants but also to the Common Market of the European Union.

JERUSALEM CONFLICT

Context

- Israeli armed forces stormed **Al-Aqsa Mosque in the Haram esh-Sharif in Jerusalem**, ahead of a march by Zionist nationalists commemorating Israel's capture of the eastern half of the city in 1967.
- In retaliation, **Hamas**, the Islamist militant group that runs Gaza, fired dozens of rockets.

Background

- **Gaza:**
  - It is sandwiched between Israel and Egypt and is just 25 miles long and six miles wide.
  - It was part of the British-ruled Palestine Mandate before the 1948 war surrounding Israel's creation, when it came under Egypt's control.
  - Large numbers of Palestinians who fled or were driven from what is now Israel ended up in Gaza. Israel captured **Gaza, along with the West Bank** and **east Jerusalem**, in the **1967 Mideast war**.
  - Palestinians want all three territories to form their future state.
- **First Palestinian intifada:** Erupted in Gaza in 1987. Same year Hamas was founded.
- **Oslo peace process (1990):** It established the Palestinian Authority and gave it limited autonomy in Gaza and parts of the occupied West Bank.
- **Hamas takeover:**
  - Israel withdrew its troops and Jewish settlements from Gaza in 2005, after a second and far more violent intifada. The following year, Hamas won a landslide victory in Palestinian elections.
  - Hamas has shown no tolerance for dissent, arresting political opponents and violently suppressing rare protests against its rule.
- **Wars:**
  - Hamas and Israel have fought three wars and several smaller battles. The worst so far was the 2014 war, which lasted for 50 days.

Jerusalem at the centre of conflict

- According to the original 1947 UN partition plan, Jerusalem was proposed to be an international city.
- But in the first Arab Israel war of 1948, the Israelis captured the western half of the city, and Jordan took the eastern part, including the Old City that houses Haram al-Sharif.
- Al-Aqsa Mosque, Islam's third holiest site, and the Dome of the Rock are situated within Haram al-Sharif.
- One side of the compound, called Temple Mount by the Jews, is the Wailing Wall (Western Wall), which is believed to be the remains of the Second Jewish Temple, the holiest site in Judaism.
- Since its annexation, Israel has expanded settlements in East Jerusalem, which is now home for some 220,000 Jews.
- The Palestinian leadership across the political spectrum have maintained that they would not accept any compromise formula for the future Palestinian state unless East Jerusalem is its capital.

India–Palestine relations

- **Establishment of relations:** India was the first non-Arab country to contemporaneously recognize the Palestine Liberation Organisation's authority as the sole legitimate representative of the Palestinian people.
- **Indian aid:**
  - **1995:** India pledged US$1 million for assistance to the Palestinian people.

- **1996:** Construction of a Library-cum-Activity Centre at the Palestinian Technical College in Deir-El-Balah and Library at the Al-Azhar University in Gaza.
- **1997:** India offered 51 specialised security training slots to Palestinians in various disciplines during the year. India also continued to offer 8 scholarships under ICCR Schemes to Palestinian students.
- **2012:** India pledged US$10 million as aid.

- **Bilateral visit:** Prime Minister Narendra Modi visited the West Bank on 10 February 2018, which was the first visit by an Indian Prime Minister to the Palestinian territories. During the trip to Palestine, Narendra Modi was conferred **Grand Collar of the State of Palestine** on 10 February 2018

About Iron Dome:

- Iron Dome is a multi-mission system capable of **intercepting rockets, artillery, mortars and Precision Guided Munitions** like very short range air defence (V-SHORAD) systems as well as aircraft, helicopters and Unmanned Aerial Vehicles (UAV) over short ranges of up to 70 km.
- It is an **all-weather system** and can **engage multiple targets simultaneously** and can be deployed over land and sea.
- Iron Dome is jointly manufactured by **Rafael Advanced Systems** and has been in service with **Israeli Air Force since 2011**.
- **Working:**
  - An Iron Dome battery consists of a battle management control unit, a detection and tracking radar and a firing unit of three vertical launchers, with 20 interceptor missiles each.
  - The interceptor missile uses a proximity fuse to detonate the target warhead in the air.
- **Advantage:**
  - Its ability to identify the anticipated point of impact of the threatening rocket.
  - To calculate whether it will fall in a built-up area or not, and
  - To decide on this basis whether or not to engage it.
- **Limitations:**
  - The system has a 'saturation point'.
  - It is capable of engaging a certain (unpublished) number of targets at the same time, and no more.
  - System's inability to cope with very short range threats as estimates put the Iron Dome's minimum interception range at 5-7 kilometres.

Reasons for India's pro-Palestine policy

- **India Muslim Population:** Indian Muslim Population has always been sympathetic to the Muslim population in Palestine. This is why politicians in India followed a pro-palestine approach.
- **Relations with Arab:** Arab countries were sympathetic towards the paletinian cause and Indian government wanted cordial relations with them because:
  - more than **7 million diaspora** working in Arab countries,
  - energy security,
  - Countering Pakistan

Way Forward

- Both Israel and Palestine should **immediately resume the peace talks** under the guidance of the UNSC.
- Further any successful peace initiative would need to resolve the four core issues: West Bank borders/settlements, Israeli security, Palestinian refugees, and Jerusalem.
- There must be proper adherence to **UNSC resolution 2334** which states that Israel's settlement activity has no legal validity and demands that it stop such activity.
- **India should counsel Israel to exercise restraint** and move towards a two-state solution.
- The best solution is a **"two-state solution"** that would establish Palestine as an independent state in Gaza and most of the West Bank, leaving the rest of the land to Israel.

SOCIAL STOCK EXCHANGES

Context

- A technical group on social stock exchanges (SSEs) has recommended that political and religious organisations, trade organisations as well as corporate foundations should not be allowed to raise funds through SSEs.
- SEBI set up the technical group in September under the chairmanship of Harsh Bhanwala, former chairman of NABARD.
- The idea of a social stock exchange (SSE) was mooted by Finance Minister Nirmala Sitharaman while presenting the Union Budget 2019-20.

Recommendations

Eligibility Organisation

- Both For Profit Enterprise (FPE) and Not for Profit Organisation (NPO) will be eligible to tap the SSE.
  - They need to show their primary goals are social intent and impact.

Modes of Raising Funds:

  - **NPOs:** Through equity, zero coupon zero principal bond, development impact bonds, social impact fund with 100 per cent grants-in grants out provision, and donations by investors through mutual funds.
  - **FPEs:** Through equity, debt, development impact bonds, and social venture funds.

Social Impact Report:

- Entities listed on SSE will have to disclose their social impact report on an annual basis.

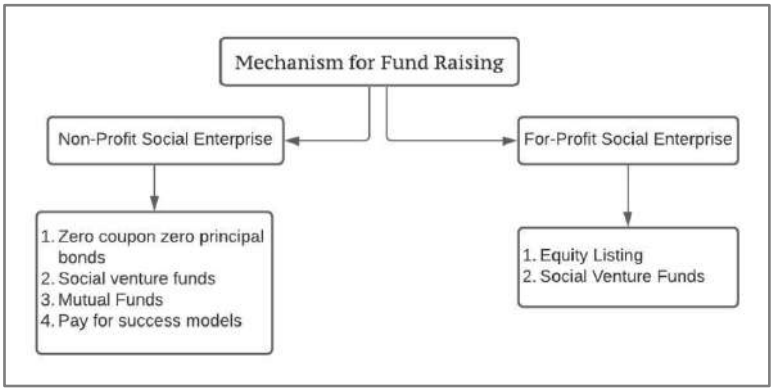
Eligible Activities

- Eradicating hunger, poverty malnutrition and inequality; training to promote rural sports; promoting gender equality by empowerment of women and LGBTQIA+ communities; slum area development/ affordable housing;forest and wildlife conservation; promoting livelihoods for rural and urban poor; promotion of financial inclusion among others.

Track Record

- FPEs will first have to demonstrate their track record through social performance.

Need of SSEs



- **Visibility:** SSEs would help improve visibility and knowledge among all stakeholders (funders, issuers and customers) about the contributions of social enterprises to the economy.
- **Standardise Finance:** They would also establish procedures to standardise social finance transactions, build awareness about the needs and challenges of this sector and develop social capital.
- **Funding Gap:** These stock exchanges would bridge the funding gap for social enterprises and enable a growth of strong professional networks of investors and subject matter experts in order to guide social enterprises.
- **Creating Investment Ecosystem:** They create the necessary social investment ecosystem for enterprises and investors, whose objective is to generate maximum positive social impact and place environmental, social and governance (ESG) features within the pursuit of profits and growth.
- **British Council Report:**
  - It observed that 32% of Indian social enterprises have seen a general lack of understanding among banks and financial organisations.

- It also found that about 33% of Indian social enterprises felt that their limited networks act as a barrier to accessing investors.

About SSE

- It allows listing of non-profit or non-government organisations on stock exchanges.
- It may be listed on BSE or NSE.
- Objectives of SSEs:
  - The SSEs will aim at unlocking large pools of social capital, and encourage blended finance structures.
- Tax Benefits:
  - Investors will get Section 80G benefits which allow all investments in securities/instruments of NPOs listed on SSE to be tax deductible, and corporates to deduct CSR expenditure from their taxable income, among other things.

Way Forward

- **Definition:**
  - Current SSE definitions and constituent forms need to be aligned to globally aligned definitions, standards and frameworks.
  - Examples: Impresa Sociale in Italy, Social Purpose Company in Belgium
- **Ecosystem lever:**
  - SSE can play a market-making role and enable other legislation around legally defined social enterprises.
  - Example: In the EU, the Single Market Act, the Social Impact Accelerator, the Social Business Initiative and the Single Market Act II were possible and fiscal measures targeted due to the existence of social enterprises.

Conclusion

- As per a survey conducted by Brookings India, 57% of the social enterprises identify access to debt and equity as a barrier to growth and sustainability.
- The advent of an SSE in India presents itself as a promising, groundbreaking and an illustrious step to bolster the impact investing ecosystem in the country and improve access to larger pools of capital for the social sector.
- This development also comes at an opportune time when the demand for financial returns coupled with desired social or environmental impact, is growing manifold.

5TH GENERATION BANKING REFORMS

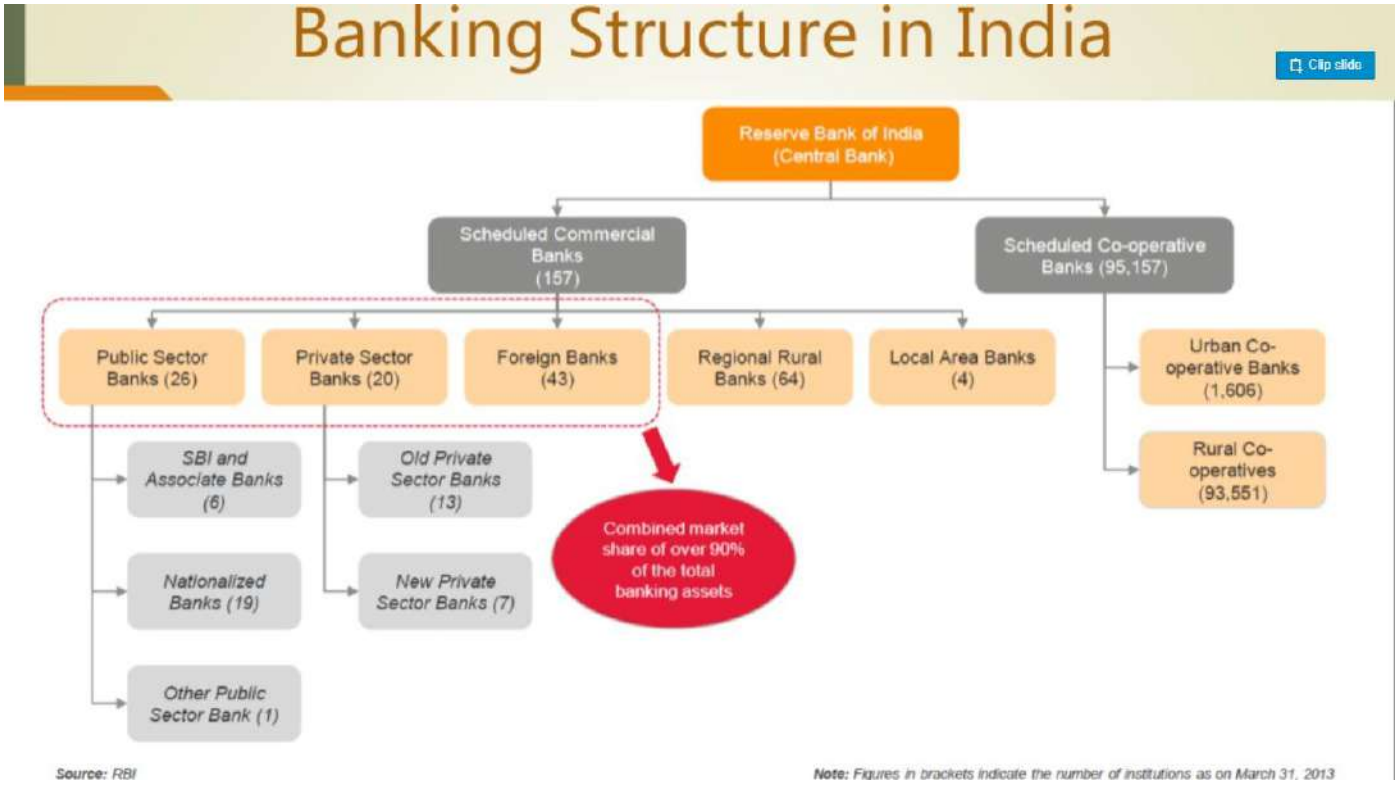
GS-III ECONOMY

Context

- The government recently announced new banking reforms to ease its burden in terms of mobilising additional capital. They Include:
- Establishment of a Development Finance Institution (DFI),
- Creation of a Bad Bank, and
- Privatisation of public sector banks (PSBs)

Previous Banking Reforms

- **First Generation (till 1947):**
  - The Swadeshi Movement saw the birth of many small and local banks.
  - Most of them failed mainly due to internal frauds, interconnected lending, and the combining of trading and banking books.


Banking Structure in India
Clip slido
Reserve Bank of India (Central Bank)
Scheduled Commercial Banks (157)
Scheduled Co-operative Banks (95,157)
Public Sector Banks (26)
Private Sector Banks (20)
Foreign Banks (43)
Regional Rural Banks (64)
Local Area Banks (4)
Urban Co-operative Banks (1,606)
Rural Co-operatives (93,551)
SBI and Associate Banks (6)
Nationalized Banks (19)
Other Public Sector Bank (1)
Old Private Sector Banks (13)
New Private Sector Banks (7)
Combined market share of over 90% of the total banking assets
Source: RBI
Note: Figures in brackets indicate the number of institutions as on March 31, 2013

- **Second generation (1947-1967):**
  - Indian banks facilitated concentration of resources (mobilised through retail deposits) in a few business families or groups.
  - They neglected credit flow to agriculture.
- **Third generation (1967-1991):**
  - Nexus between industry and banks was broken through the nationalisation of 20 major private banks and introduction of priority sector lending.
  - They resulted in the shift from 'class banking' to 'mass banking' and had a positive impact on:
    - ✓ the expansion of branch networks across (rural) India,
    - ✓ massive mobilisation of public deposits and
    - ✓ incremental credit flow to agriculture and allied sectors.
  - However, the banking industry experienced a decline in asset quality, financial soundness, and efficiency during this period as a result of relaxation in credit appraisal standards to meet the priority sector targets.
- **Fourth Generation (After liberalisation):**
  - The Indian economy has diversified and been growing rapidly since 1991, and getting increasingly integrated with the global economy.
  - It saw landmark reforms such as
    - ✓ issue of fresh licences to private and foreign banks to infuse competition
    - ✓ introduction of prudential norms;
    - ✓ providing operational flexibility coupled with functional autonomy; focus on implementation of best corporate governance practices; and
    - ✓ strengthening of capital base as per the Basel norms.

Need of 5th Generation Reform

- Given the current challenges of a **burgeoning population**, the ongoing **Covid-19 pandemic**, and the **West's intention to shift its manufacturing base** as well as **supply/value chains from China to India** and elsewhere, it is essential to move forward with fifth generation banking reforms.

- This calls for a paradigm shift in the banking sector to improve its resilience and maintain financial stability.

Narasimham Committee Report (1991) and The way forward (Reserve Bank of India, 2013):

- They emphasised that India should have three or four large commercial banks, with domestic and international presence, along with foreign banks.
- The second tier may comprise several mid-size lenders, including niche banks, with economy-wide presence.
- In accordance with these recommendations, the government has already merged a few PSBs, initiated steps towards setting up of DFI, Bad Bank, etc.

Defects of Indian Banking System

- **Low Profitability:**
  - Irregularities and corruption in lending operations, misappropriation, frauds, rising operating costs, etc. have led to decline in their profitability.
- **Growing Non-Performing Assets:**
  - According to S&P Global Ratings, Indian banking sector's bad loans can shoot up to 10-11 per cent of the total loans as on March 31, 22 from eight per cent on June 30, 2020.
- **Low Capital Base:**
  - The capital base of Indian banks in India was very low and not uniform.
  - In the case of 28 public sector banks, the capital base was the same as at the time of their nationalisation.
  - For Private sector banks, the required capital was linked to their geographical location while foreign banks operating in India were required to have foreign funds equivalent to 3.5 per cent of the deposits deployed in Indian business as at the end of each year.
- **Bad Quality of Loan Portfolios:**
  - The quality of loan portfolios of a number of banks is very bad. Often, they advance loans under extraneous (or political) pressures.
  - They extend letters of credit and guarantee limits as a routine affair without adopting commercial procedure in granting loans.
- **Dual Control:**
  - The Indian banking system suffers from dual control of the Government and Reserve Bank. It is over-regulated and over-administered.
  - The credit decisions in individual cases and matters pertaining to internal management have been subjected to excessive administrative and political pressures and interferences.
  - The investing and lending programmes are directed from above. So are the appointments of chief executives and directors.

Way Forward: Niche Banking

- There is a need for niche banking to cater to the specific and varied requirements of different customers and borrowers.
- These specialised banks would ease the access to finance in areas such as RAM (retail, agriculture, MSMEs), infrastructure financing, wholesale banking and investment banking.
- **Benefits:**
  - Risk management can be more specific and the neo-banks can leverage the technology to further (digital) financial inclusion and finance higher growth of aspirational/new India.
  - These specialised banks will not indulge in cross selling of insurance and mutual funds and instead offer niche financial services to customers.
  - They can have need-based infrastructure and be staffed with professionals with specialised skill-sets from the market.
  - Regulatory surveillance through prudential supervision and control over the banks may be easier.

- **Mechanism:**
  - The proposed DFI/niche banks may be established as specialised banks to have access to low-cost public deposits and for better asset-liability management.
  - The existing strong local area banks and urban cooperative banks may be converted into RAM banks and be freed from dual control.
- **Other Suggestions:**
  - Fifth generation banking reforms should focus on the **need for higher individual deposit insurance** and effective **orderly resolution regimes to mitigate moral hazard** and **systemic risks with least cost** to the public exchequer.
  - The government should tighten the loose ends by:
    - ✓ allowing them to **build diversified loan portfolios** and **have cross-holdings to mitigate concentration/market risks**,
    - ✓ establishing sector-wise regulators,
    - ✓ bestowing more powers to deal effectively with wilful defaulters, and
    - ✓ paving the way for the corporate bond market (shift from bank-led economy) to create a responsive banking system in a dynamic real economy.

DISINVESTMENT

GS-III ECONOMY

Context

- The Union Cabinet gave in-principle approval for strategic disinvestment along with transfer of management control in IDBI Bank.
- The central government and LIC together own more than 94% equity of IDBI Bank.
- LIC, currently the promoter of IDBI Bank with management control, has a 49.2% stake.

About Disinvestment

- Divestment or disinvestment means selling a stake in a company, subsidiary or other investments.
- Businesses and governments resort to divestment generally as a way to pare losses from a non-performing asset, exit a particular industry, or raise money.
- The Indian government started divesting its stake in public-sector companies in the wake of economic policy in the early 1990s — 'Liberalization, Privatization, Globalization'.

Policy on Strategic Disinvestment:

- Two fold classification of Sectors to be disinvested :
- **Strategic Sector:** Bare minimum presence of the public sector enterprises and remaining to be privatised or merged or subsidiarized with other CPSEs or closed. Following 4 sectors to come under it :
  - Atomic energy, Space and Defence
  - Transport and Telecommunications
  - Power, Petroleum, Coal and other minerals
  - Banking, Insurance and financial services
- **Non- Strategic Sector:** In this sector, CPSEs will be privatised, otherwise shall be closed.
- **List:** NITI Aayog will come up with the list of Central Public Sector companies that would be taken up for strategic disinvestment.
- **Incentivising states:** For disinvestment of their Public Sector Companies, an incentive package of Central Funds for them will be worked out.
- **Special purpose vehicle:** Using Special Purpose Vehicle in the form of a company to carry out monetization of idle land. This can either be by way of direct sale or concession or by similar means.

Benefits of Disinvestment

- **For the Government:**
  - Raising valuable resources for the government, which could be used to bridge the fiscal deficit for one.
  - A lot of these stake sales would also result in annual revenues for the government.
  - The government can focus more on core activities such as infrastructure, defense, education, healthcare, and law and order.
  - A leaner government with reduction in the number of ministries and bureaucrats.
- **For the Markets and Economy:**
  - Brings about greater efficiencies for the economy and markets as a whole
- **For the Taxpayers:**
  - A much better utilisation of 'stuck' funds would be into critical sectors such as healthcare, education and infrastructure
- **For the Employees:**
  - Monetary gains through ESOPs and preferential issue of shares
  - Pay rises, as has been seen in past divestments
  - Greater opportunities and avenues for career growth- further employment generation
- **For the PSUs:**
  - Greater autonomy leading to higher efficiencies

Challenges and Obstacles of Disinvestment

- **Opposition:** Selling "family jewels" or "nation's treasures" is viewed unfavourably by disinvestment's many critics, who include labour unions and politicians.
- **Loss of annual income**: PSUs are Government companies and thus the profit-making ones are a source of regular income. Their privatisation would mean a loss of this income channel.
- **Strategic:** Strategic, national security and public interest concerns. Some PSUs are significant in a strategic sense. Bharat Petroleum, for example, is one of the world's biggest corporations and holds considerable sway over the country's oil and gas wealth.
- **Employment:** Private companies can streamline the operations of a PSU to make it more profitable. This could lead to job losses and labour unrest, which are politically charged issues.
- **Lack of Investor:** Unsurety of incentive for the private sector. Many PSUs are loss-making and in bad shape. The Government may be eager to divest its stakes in these enterprises, but they might not garner much enthusiasm from investors.

Factors responsible for low profits in the PSUs:

- **Price policy of public sector undertakings:** In the working of public enterprises profitability criteria was not given proper place. Emphasis was on the social obligations of public enterprises.
- **Under-utilisation of capacity:** It has arisen on account of overestimating demand, administrative deficiencies, lack of proper working techniques, labour troubles or failure to install balancing equipment or making technical improvement essential for fuller utilisation of capacity.
- **Problems related to planning and construction of projects:** There is no evidence that a proper study of these aspects was made before the project was launched. The scale was determined more by a bias for launching a big project rather than on the basis of economic calculation.
- **Problems of labour, personnel and management:** Recruitment is haphazard; there is overstaffing, drift of personnel and a lack of regular schemes of 'executive development'.
- **Lack of autonomy:** The political interference has been forcing the management of public enterprises to give up sound commercial principles in arriving at vital decisions pertaining to investment, location, production and pricing policies of public enterprises.

Way Forward

- **Caution against undervaluation:** Government must make a good judgment of the value of the company it decides to disinvest. Timing of the move is also important because if the market conditions are not favourable for the move, it will lead to undervaluation.
- **Asset creation from the proceeds:** Proceeds must be utilized strictly for new asset creation instead of using the proceeds from the disinvestment to fund revenue deficit.
- **Competition:** Privatisation should lead to greater competition in all cases and not monopoly.
- **Transparency:** The strategic sale process should be fair and transparent with a minimum reserve price that does justice to the valuable assets being auctioned off.

INSOLVENCY AND BANKRUPTCY CODE (IBC)

GS-III ECONOMY

Context

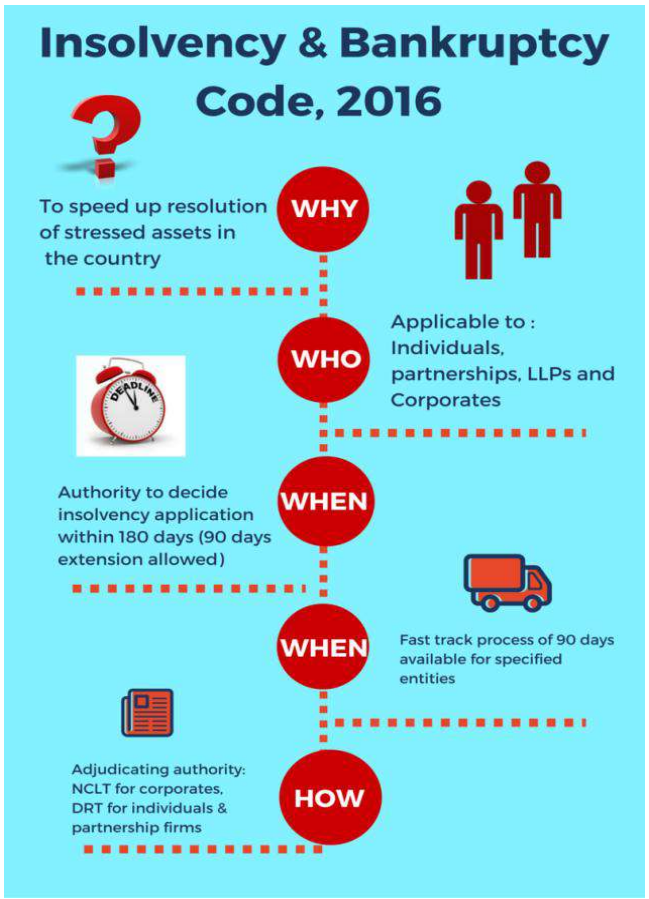
- The Supreme Court upheld a government move to allow lenders initiate insolvency proceedings against personal guarantors, who are usually promoters of big business houses, along with the stressed corporate entities for whom they gave guarantee.

Key highlights of the judgment

- According to the court, there was an intrinsic connection between personal guarantors and their corporate debtors.
- This intimate connection made the government recognise personal guarantors as a separate species under the IBC.
- It would facilitate the Committee of Creditors to frame realistic plans, keeping in mind the prospect of realising some part of the creditors' dues from personal guarantors.
- Approval of a resolution plan in respect of corporate debtors would also extinguish the liability of the personal guarantor.

About Insolvency and Bankruptcy Code (IBC) 2016

- Centre introduced the IBC in 2016 to resolve claims involving insolvent companies.
- **Aim:** The code aims to protect the interests of small investors and make the process of doing business less cumbersome. IBC was intended to tackle the bad loan problems that were affecting the banking system.
- **Applicability:** IBC applies to companies, partnerships and individuals.
- **Working:**
  - It provides for a time-bound process to resolve insolvency.
  - When a default in repayment occurs, creditors gain control over debtor's assets and must take decisions to resolve insolvency.
  - Debtor and creditor both can start 'recovery' proceedings against each other.
  - Companies have to complete the entire insolvency exercise within 180 days under IBC.
  - The deadline may be extended if the creditors do not raise objections on the extension.
- **Time Limit:** The whole exercise of insolvency must be


Insolvency & Bankruptcy Code, 2016
WHY
To speed up resolution of stressed assets in the country
WHO
Applicable to : Individuals, partnerships, LLPs and Corporates
WHEN
Authority to decide insolvency application within 180 days (90 days extension allowed)
WHEN
Fast track process of 90 days available for specified entities
HOW
Adjudicating authority: NCLT for corporates, DRT for individuals & partnership firms

completed in 90 days and the deadline can be extended by 45 days. If debt resolution doesn't happen the company goes for liquidation.

- **Regulation:**
  - The Insolvency and Bankruptcy Board of India has been appointed as a regulator and it can oversee these proceedings.
  - It has 10 members; from the Finance Ministry and Law Ministry and the Reserve Bank of India.
- **Facilitator:**
  - A licensed professional administers the resolution process, manages the assets of the debtor, and provides information for creditors to assist them in decision making.
- **Adjudication:**
  - The proceedings of the resolution process will be adjudicated by the **National Companies Law Tribunal (NCLT)**, for companies and the **Debt Recovery Tribunal (DRT)** for individuals.
- **Committee of creditors:**
  - A committee consisting of the financial creditors who lent money to the debtor is formed by the insolvency professional.
  - They may choose to revive the debt owed to them by changing the repayment schedule or selling the assets of the debtor to get their dues back.
  - If a decision is not taken in 180 days, the debtor's assets go into liquidation.

Major Issues

- **Lack of operational NCLT benches:** It leads to low approval rate of resolution plans . Most of these remain non-operational or partly operational due lack of proper infrastructure or adequate support staff.
- **Crossing time limits:** Undoubtedly, the IBC has been effective to a great extent so far, however, compliance to timelines remains an issue. The earlier envisaged timeframe of 180 days (+90 days extension) was increased to 330 days for resolving issues. Despite the extension, resolution plans continue to cross the deadline.
- **Resolution has become complex:** The process also involves a number of stakeholders, which further makes resolution complex and time-consuming. Such anomalies affect the valuation profession and its credibility.
- **Monopoly:** Sole authority lies with the committee of creditors to control the RPs without any guidelines.

Way Forward

- The need of the hour is to **enhance institutional capacity of the NCLT benches** and bring in more transparency in the selection of RPs.
- Information utilities (IUs) should help to c**ollect, collate and disseminate financial information** to facilitate insolvency resolution in a time bound manner.
- IBC created an **Insolvency and Bankruptcy Fund** that can be used to enhance the operational capacity of NCLT by creating proper infrastructure or training support staff.

Conclusion

- The IBC is a crucial structural reform, which if implemented effectively and in a time bound manner can produce major gains for the corporate sector and the economy as a whole.

ORGANIC AGRICULTURE EXPORT

Context

- First consignment of millets grown in Himalayas from snow-melt water of Ganges in Dev Bhoomi (Land of the God) Uttarakhand would be exported to Denmark.
- APEDA has sourced & processed ragi (finger millet), and jhingora (barnyard millet) from farmers in Uttarakhand for exports.
- Produce meets the organic certification standards of the European Union.

Status of India's Organic Food Exports

- **Growth:** India's export of organic food products rose by more than 51% to Rs 7078 crore ($ 1040 million) during April-February (2020-21) compared to the same period in the previous fiscal (2019-20).
  - The growth in organic products has been achieved despite logistical and operational challenges posed by the COVID19 pandemic.
- **Major Commodity:** Oil cake meal is a major commodity of the organic product exports from the country followed by oil seeds, fruit pulps and purees, cereals & millets, spices, tea, medicinal plant products, dry fruits, sugar, pulses, coffee, essential oil etc.
- **Major Destination:** India's organic products have been exported to 58 countries including the USA, European Union, Canada, Great Britain, Australia, Switzerland, Israel and South Korea.

Technical Requirements

- Organic products are exported provided they are **produced, processed, packed and labelled** as per the requirements of the **National Programme for Organic Production (NPOP).**
  - The NPOP has been implemented by **APEDA** since its inception in 2001 as notified under the **Foreign Trade (Development and Regulations) Act, 1992**.
  - The NPOP certification has been **recognized by the European Union and Switzerland** which enables India to export unprocessed plant products to these countries without the requirement of additional certification.
  - NPOP also facilitates export of Indian organic products to the **United Kingdom** even in the post Brexit phase.
  - NPOP has also been recognized by the **Food Safety Standard Authority of India (FSSAI)** for trade of organic products in the domestic market.

Challenges

- **Supply Chain Systems**
  - Industry often faces challenges with respect to poor collection channels, insufficient production of organic products, poor transportation facilities and lack of proper processing facilities in-line with the global organic standards.
  - Under supply of appropriate storage infrastructure and quality control also remains a difficult area.
- **Food Origin and Mileage**
  - The country of origin of the food and food mileage are becoming increasingly important.
  - Food mileage refers to the distance the food is transported, from the time of its production, until it reaches the consumer, gaining prime importance in the case of organic food products.
- **Size of farms and collaboration**
  - The production of produce in small to medium farms is rather limited, amounting to a few hundred tonnes.
  - This challenge is particularly evident in sectors, such as dairy, poultry, fruits and vegetables, where scale and linkage with primary processing is critical.

- **Handling and Stock Management**
  - Organisations often struggle with keeping their information up to date and, as a result, the information generated is not always used as effectively as could be.
  - Poor documentation has been a considerable challenge for the industry with respect to certification, market entry and product positioning.
- **Marketing and Sales Management**
  - Marketing of organic products involves both the social and ecological aspects of the products.
  - Efforts need to go into capacity building, production related issues, quality parameters and the logistics of procuring products, especially from remote and inaccessible areas.
  - Organic certification is becoming increasingly important in relation to marketing.
- **Cost, margins, price setting and value addition**
  - Price premium of organic products in comparison with conventional products is often a marketing challenge for the sale of organic products.
  - Pricing has also been a limiting factor during the economic recession when more producers turn to organic production, and consumer markets shrink.
  - The prices for organic products vary significantly between different companies, different retail formats and across product categories, which also is a significant challenge for the organic industry.
- **Issues in Certification**
  - It requires extensive paperwork, detailing farm history, and usually including the results of soil and water tests.
  - It also involves annual on-farm inspections and the fee needs to be paid by the growers to the certification bodies for annual surveillance.
  - The cost involved along with the prolonged procedure and lack of knowledge and understanding is acting as an obstacle in the organic certification procedure in India, particularly for the small and marginal Farmers.
- **Limited knowledge on organic production**
  - There is also limited availability of suitable designs of organic farming systems for various climatic conditions and crops, supported through appropriate technologies.
  - Availability of insufficient biomass on-farm; and inaccessibility of external inputs, such as organic manures and pesticides; organic ways of post-harvest handling and packing; have also been cited as challenges in organic production in India.
- **Market intelligence**
  - The information available in the country regarding organic products produced and exported is limited, and thus do not lead to any business or policy decisions.
  - Data is also not available to calculate the prices of different organic commodities under a variety of farming cultures of India.

Recent Steps to boost agricultural export

1. Agriculture Export Policy 2018 (Objectives)

- To double agricultural exports from present **~US$ 30+ Billion to ~US$ 60+ Billion** by 2022 and **reach US$ 100 Billion** in the next few years thereafter, with a stable trade policy regime.
- To **diversify our export basket, destinations** and boost **high value and value added agricultural exports** including focus on perishables.
- To promote novel, **indigenous, organic, ethnic, traditional and non-traditional** Agri products exports.
- To strive to **double India's share in world agri exports** by integrating with the global value chain at the earliest.
- Enable farmers to benefit from **export opportunities in overseas markets.**

2. National Project on Organic Farming

- It is a Central Sector Scheme. The primary objective of the NPOF Scheme is to encourage the production of food organically, and promote manufacture and usage of organic and biological inputs, such as bio-fertilizers, organic manure, biopesticides and biocontrol agents.

3. Capital Investment Subsidy for Setting up of Organic Inputs Production

- The NPOF provides financial assistance for fruits and vegetables waste compost units by providing for 33 per cent of the capital cost of the project.

4. National Project on Management of Soil Health and Fertility (NPMSF)

- It aims to promote the balanced and judicious use of fertilizers and organic manure on soil test basis.

5. National Horticulture Mission

- This is a Centrally Sponsored Scheme which aims at strengthening the growth of the horticulture sector comprising fruits, vegetables, roots and tuber crops, mushroom, spices, flowers, aromatic plants, cashew and cocoa.

About APEDA:

- It is an Indian Apex-Export Trade Promotion Active government body.
- It is the premier body of export promotion of fresh vegetables and fruits.
- It was set up by the Ministry of Commerce and Industry.

The Way Forward

- **Supply Chain Systems**
  - Improvements in the distribution and the packaging may be considered to address the supply chain challenges.
  - Focusing on total quality management at each point in the supply chain is of considerable importance.
  - Developing direct business relations, planning sales in line with production, and developing advance purchasing schemes may make the supply chain more efficient.
- **Food Origin and Mileage**
  - Streamlining logistics is key to minimizing food mileage, which may include minimizing the lead time from farm to shelf and increasing the shelf life of fresh organic foods.
  - This would require revamping warehouse management, order management and transportation management by way of implementation of integrated automated storage/retrieval systems, automatic identification of products.
- **Size of farms and collaboration**
  - Aggregation of the unorganized small organic producers by forming cooperatives and producer companies may enable the producers to put together their produce, obtain funds, and possess the processing and storage facilities.
  - Working as cooperatives and producer companies may also help the producers focus more on production strategies, by delegating operations and marketing to hired professionals.
- **Handling and Stock Management**
  - Total Quality Management is essential in handling and stock management, which may include a contingency plan for handling wastage.
  - Monitoring purchase, waste, and sales are important for informed decision making, planning of production, and purchase volume.
- **Marketing and Sales Management**
  - Pro-active certification, opting for good packaging techniques, product development as per consumer preferences, collaboration among the organic sector for generic promotion activities and adopting effective marketing methods by usage of media and display messages can enhance the organic products sales.
- **Market assurance and certification**
  - Proactive certification is essential to gain customer's trust especially if the produce is not sold directly from the farm, but through third parties, such as retail shops.
  - Self-inspection systems involving both producers and consumers should also be recognised for establishing credibility.

- **Limited knowledge on organic Production**
  - Increased funding for research, education and extension activities and promoting continued economic analysis of the issues and trends in the organic sector would be productive in enhancing knowledge related to organic production.
- **Market intelligence**
  - There is an urgent need to undertake cost benefit analysis and developing a framework for price discovery of organic commodities.
  - Moreover, strengthening of data collection and dissemination is also required to take informed decisions on markets and products that have potential in India.
  - The undertaking of comprehensive studies on organic niches of India would be advantageous in bringing organic farmers into the export market, with comparative advantage.

KHARIF STRATEGY FOR OILSEEDS

GS-III AGRICULTURE

Context

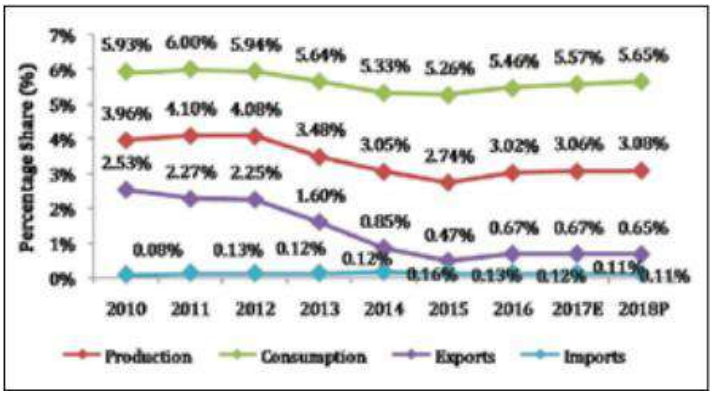
- To achieve self-sufficiency in the production of oilseeds, the Ministry of Agriculture and Farmers Welfare has adopted a multi-pronged strategy.

Details

- Under the strategy, free distribution of high yielding varieties of seeds to the farmers will be done for the Kharif season 2021 in the form of minikits.
- It will bring an additional 6.37 lakh hectare area under oilseeds and is likely to produce 120.26 lakh quintals of oilseeds and edible oil amounting to 24.36 lakh quintals.
- Emphasis on enhancing the productivity of oilseeds by increasing the availability of high yielding varieties of seeds for the farmers to use on their fields.

Status of Oil Seed Production in India

- India is the 4th largest oilseed producing economy in the world after the USA, China and Brazil.
  - It contributes about 10% of the world oilseeds production, 6-7% of the global production of vegetable oil, and nearly 7% of protein meal.
- Although India has 20.8% of the world's area under oilseed crops, it accounts for about 10% of global production.
  - This is because of low productivity of oilseed crops and year to year fluctuations in production in India.



Indian Oil Seed Market

- Three main oilseeds namely, groundnut, soybean, and rapeseed-mustard accounted for over 88% of total oilseeds output.
- **Soybean:** It is the most important crop grown.
  - **States:** Madhya Pradesh, Maharashtra, and Rajasthan accounting for more than 95% of total production.
- **Rapeseed-Mustard:** It is the second most important oilseed crop.
  - **States:** Rajasthan, Madhya Pradesh, Haryana, Uttar Pradesh, West Bengal and Gujarat.
- **Groundnut:** It was the largest oilseed crop in the 1990s, lost its share and is now the third important oilseed crop grown.

- **States:** Gujarat, Andhra Pradesh, Tamil Nadu, Rajasthan, Karnataka and Maharashtra.

Importance of oilseeds and edible oils

- **Overall Production**
  - India is the largest producer of oilseeds in the world and the oilseed sector occupies an important position in the agricultural economy of the country.
- **Area Coverage**
  - In terms of acreage, production and economic value, these crops are second only to foodgrains.
  - India is the fifth largest vegetable oil economy in the world, next only to the USA, China, Brazil and Argentina, and has an annual turnover of about Rs 80000 crore.
- **Suitability**
  - With its rich agro-ecological diversity, India is ideally suited for growing all the major annual oilseed crops.
- **Import dependence**
  - Imports of edible oils were liberalized during 1996-97. This policy of liberalization stemmed, as much from the lack of self-sufficiency in domestic edible oil production as from the commitments under the new multilateral trade regime under WTO.
- **Nutritional Security**
  - The lack of domestic availability of edible oils has got implications for nutritional security also. The per capita consumption of edible oils at 12.7 kilogram per annum is well below the world average of 23.46 kg/ annum.

Challenges faced in Oil Seed Industry

- **Dependence on rainfall**
  - Oilseed cultivation in India is predominantly dependent on rainfall which leads to a higher instability.
  - Marginal lands are earmarked for cultivation of oilseed crops.
- **Subsidies**
  - The country's population is accustomed to **cheap vegetable oils due to subsidies** on the supply side.
  - The unviable nature of some of these subsidies means that **they will have to be withdrawn**, at least partially in the near future.
  - This will translate into higher retail prices of edible oils at the consumer end of the edible oil value chain.
- **Per Capita Consumption**
  - Current per capita vegetable oil consumption in India is much higher than that recommended by nutritionists.
  - This calls for a serious thinking on the implementation of programmes to increase awareness about adequate levels of vegetable oil consumption.
- **Unremunerative Prices**
  - The domestic prices of oilseeds and vegetable oils are **too un-remunerative** to enthuse farmers for intensive oilseeds cultivation.
- **Diversion**
  - The diversion of vegetable oils for the production of biodiesel is another emerging issue, albeit of manageable proportions as on date, but with a potential to redraw the planning horizon and adversely impact predicted levels of edible oils availability.

Way Forward

- **Farm level options**
  - At least 2 million hectares of paddy land in India remains fallow after the monsoon season of paddy cultivation. Relay cropping of mustard can be taken up which will use residual moisture, and could yield an additional 3.5 to 4 million tonnes of rapeseed-mustard.
  - Protective/emergency irrigation through participatory irrigation management approaches holds great promise for groundnut and other farmers.

- **Institutional options**
  - Better extension systems, that too with downward accountability with the last mile extension gaps plugged as are happening with many agro-ecology centred programmes, productivity can be improved.
  - Community level planning processes and institutional frameworks have enabled better utilisation of scarce resources like groundwater for emergency irrigation for groundnut cultivation in states like Andhra Pradesh.
- **Policy options**
  - It is important that the market is not flooded by cheap oils from elsewhere as well as to ensure that remunerative markets are provided to our oilseed producers.
  - proper land use and crop planning that prioritises oilseeds and prevents land use diversion would have ensured Extra 5 million tonnes of oil through domestic production in this additional area that went into cotton and maize cultivation, egged on by programme and policy support. The importance of increasing area under mustard cultivation cannot be overstressed.

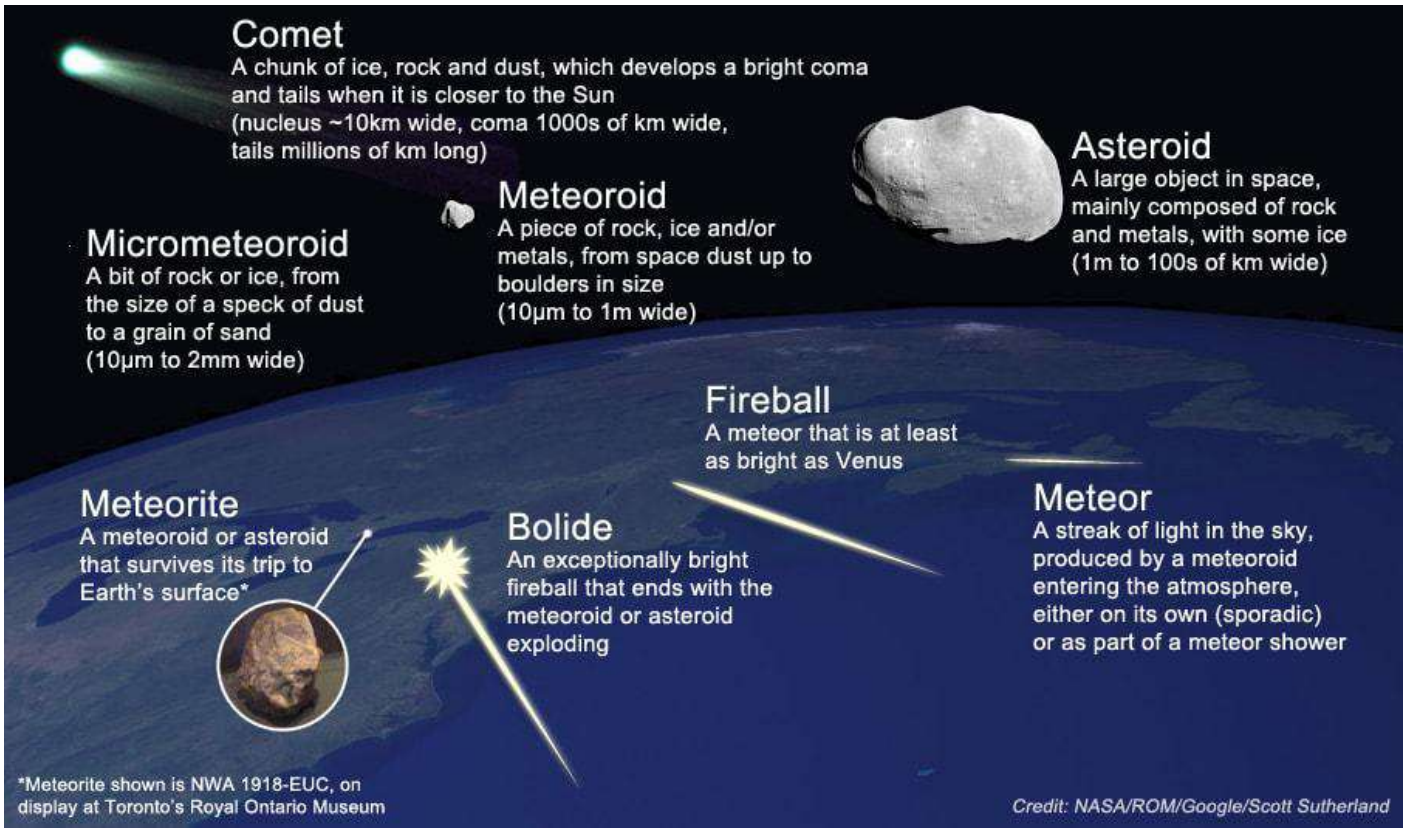
National Mission on Oilseeds and Oil Palm

- It has the objective to augment the **availability of edible oils and reduce the import of edible oils** by increasing the production and productivity of oilseeds and oil palm.
- To this end a multi-pronged strategy is being adopted which includes the following:
  - Increasing the seed replacement ratio with focus on varietal replacement
  - Increasing irrigation coverage
  - Intercropping with cereals/pulses/sugarcane
  - Productivity improvement and adoption of proven and climate-resilient technologies
  - Area expansion through diversification of low yielding food grains.
  - Targeting rice fallow areas and high potential districts
  - Creation of 36 oilseed hubs with a focus on regional approach for larger availability of quality seeds

METEORITES

Context

- A piece of the Winchcombe meteorite that touched down in the town of Winchcombe in the UK in February 2021 will be displayed at the National History Museum.
- It is a **Carbonaceous Meteorite.**


Comet
A chunk of ice, rock and dust, which develops a bright coma and tails when it is closer to the Sun (nucleus ~10km wide, coma 1000s of km wide, tails millions of km long)
Asteroid
A large object in space, mainly composed of rock and metals, with some ice (1m to 100s of km wide)
Meteoroid
A piece of rock, ice and/or metals, from space dust up to boulders in size (10μm to 1m wide)
Micrometeoroid
A bit of rock or ice, from the size of a speck of dust to a grain of sand (10μm to 2mm wide)
Fireball
A meteor that is at least as bright as Venus
Meteorite
A meteoroid or asteroid that survives its trip to Earth's surface*
Bolide
An exceptionally bright fireball that ends with the meteoroid or asteroid exploding
Meteor
A streak of light in the sky, produced by a meteoroid entering the atmosphere, either on its own (sporadic) or as part of a meteor shower
*Meteorite shown is NWA 1918-EUC, on display at Toronto's Royal Ontario Museum
Credit: NASA/ROM/Google/Scott Sutherland

Types

- Meteorites are classified into three groups:
  - ✔ Stony (silicaterich),
  - ✔ Iron (Fe–Ni alloy), and
  - ✔ Stony Iron (mixed silicate iron alloy).

Carbonaceous chondrites

- Carbonaceous chondrites (also known as C-type chondrites) make up l**ess than 5% of the chondrites that fall on Earth**.
- They are characterized by the **presence of carbon compounds, including amino acids**.
- They are thought to have been formed the **farthest from the sun** of any of the chondrites as they have the highest proportion of volatile compounds.
- Another of their main characteristics is **the presence of water or of minerals that have been altered by the presence of water.**

Significance of meteorites

- Meteorites date back to the birth of the solar system nearly 4.5 billion years ago.
- Therefore examining it offer scientists **clues about the:**
  - **beginning of the solar system and the Earth.**
  - **Age and composition of the Solar System.**
  - **Geologic history of Earth and the Moon**

- **Stellar evolution:** Some meteorites contain grains of dust ("stardust") that were produced by stars before the formation of our Solar System. Studies of these presolar grains can increase our understanding of star formation and evolution.
- **History of life:** Meteorites may have brought to Earth the components necessary for life – organic compounds that can be transported great distances inside space rocks.

Do you know?

- Space agencies have launched specific missions to asteroids to be able to study them.
- One such example is **NASA's OSIRIS-REx mission** that was launched in 2018 with the aim of reaching asteroid Bennu and getting back a sample from the ancient asteroid.
- It is NASA's first mission to visit a near-Earth asteroid.
- Infact, recently, OSIRIX Rex began its journey back from asteroid Bennu.

About Bennu

- Bennu is a **B-type asteroid**, implying that it contains significant amounts of carbon and various other minerals.
- Because of its **high carbon content,** the asteroid reflects about **four per cent of the light that hits it**, which is very low when compared with a planet like Venus, which reflects about 65 per cent of the light that hits it.
- **Earth reflects about 30 per cent.**

5G

GS-III SCIENCE & TECHNOLOGY

Context

- The Department of Telecommunications recently allowed private telcos to start trials for 5G technology as well as its applications in various sectors.

Note: Before reading further know about the evolution of 5G and its Applications in detail.
Visit: https://www.iasgyan.in/blogs/the-evolution-of-5g-technology

Challenges facing 5 G

- 5G promises faster connections, more reliable data streaming, and a variety of new capabilities that can bring new opportunities.
- However, the 5G rollout is going to be challenging.

Building complex and dense networks

- New 5G antennas and RAN hardware, although powerful, cover significantly less space compared with existing 4G macrocells.
- This means similar coverage requires more 5G hardware and supporting software.

Keeping operating and maintenance costs low

- Adding the necessary hardware required for 5G networks can significantly increase operating expenses (OpEx).

Inter-cell Interference

- There are variations in the size of traditional macro cells and concurrent 5G small cells that will lead to interference.

Traffic Management

- In comparison to the traditional human to human traffic in cellular networks, a great number of Machine to Machine (M2M) devices in a cell in 5G will cause overload and congestion.

Multiple Services

- Unlike other radio signal services, 5G would offer services to heterogeneous networks, technologies, and devices operating in different geographic regions.
- So, the **challenge is standardization** to provide dynamic, universal, user-centric, and data-rich wireless services to fulfill the high expectation of people.

Infrastructure

- Researchers are facing technological challenges of standardization and application of 5G services.
- **Communication, Navigation, & Sensing** -5G technology needs larger infrastructure support.

Security and Privacy

- 5G will have to define the uncertainties related to security threats including trust, privacy, cybersecurity, which are growing across the globe.

Legislation of Cyber Law

- Cybercrime and other fraud may also increase with the high speed and ubiquitous 5G technology.

Investment requirements

- 5G deployment is a real huge investment.

Affordability of Spectrum

- India's 5G ecosystem is underdeveloped and has yet to be matured. The cost of the spectrum is exorbitant.

Last mile connectivity

- Catering to last-mile broadband connectivity in tier II, Tier III cities, and rural homes are challenging.
- Since, India lacks optical fiber infrastructure and greenfield deployment which has immensely affected Last-mile connectivity.

Affordable 5G Devices

- The biggest roadblock in the India 5G electronics manufacturing industry is that it lacks the world-class **'semiconductor fabrication unit' (FAB)** which is the notable denominator for device affordability.

Way Ahead

Key areas of focus need to be:

- **Invest in semiconduct or fabrication plants** in India or start the work to build an indigenous version of it.
- A **proper regulatory body** that will develop the roadmap for 5G in India.
- More sustainable greenfield projects like **National optical Fibre Network** that will adhere to **last-mile connectivity.**
- Higher frequency 5G networks will demand a deeper densification of networks. Eighty per cent of India's current mobile network rides over radio as opposed to that of US and China at 20 per cent. Hence, government investment and policies need to support **fiber densification to reap maximum benefits of the technology.**
- **Collaborating with global R&D bodies** for addressing technological challenges.
- Indigenous technology advancements through R&D, and IPR development for standards, technology, spectrum, and security.

- **Indigenous-developed network, hardware, and technology components** to reduce costs: Also, a testimony to Atma-nirbhar Bharat.
- **Infuse threat intelligence with artificial intelligence (AI)/machine learning (ML)**to immediately identify, detect and respond to security breaches.
- **Reasonable spectrum pricing and swift allocation of spectrum**
- **Revision of TRAI's auction model and Reserve Price framework** to reduce spectrum costs. This will prevent a monopolistic situation when a strong player bids with an intent to prevent others from entering the market easily.
- **Legislation of the Cyberlaw** is also an imperative issue.
- Policy framework enabling **extensive fiberisation and incentivisation to share fiber networks**
- Push for **"Make in India" manufacturing for 5G equipment and handsets.** Production Linked incentive Scheme is the right way forward in this regard.
- Tailor made 5G use cases and applications enabled through active trials
- **Public-private partnerships** for broadband growth and penetration, 5G trials and testing, network densification among others.
- Enhance contribution of the digital communication sector **to 8 percent of India's GDP.**
- Policy landscape to steer the growth of the digital revolution.

National Digital Communication Policy (NDCP) 2018 aims at US$ 100 billion investment in the sector and ensuring broadband coverage at 50 mbps for every citizen, Draft Cloud Computing policy, Electronic Development Fund (EDF) policy, National Manufacturing policy and Preferential Market Access (PMA)

Conclusion

- 5G is being seen as a likely game changer for India, with the potential to create an economic impact of more than US$1 trillion by 2035.
- By building out infrastructure, updating policy, and rethinking the role we play in privacy, we all can do our part to prepare for the 5G era.

LUNAR ECLIPSE

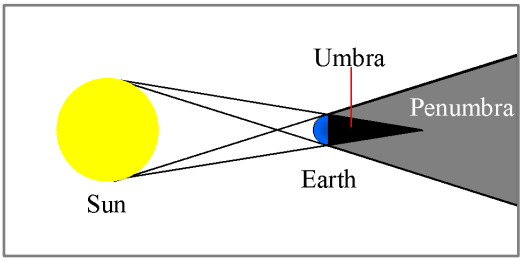
GS-III SCIENCE & TECHNOLOGY

Context

- Stargazers across the world witnessed a Total Lunar Eclipse, Blood Moon and a Flower Moon on May 26.

Earth's Three Shadows

- Earth's shadow can be divided into three parts:
  - ✔ Umbra - the darker, central part.
  - ✔ Penumbra - the outer part.
  - ✔ Antumbra - the partly shaded area beyond the umbra.



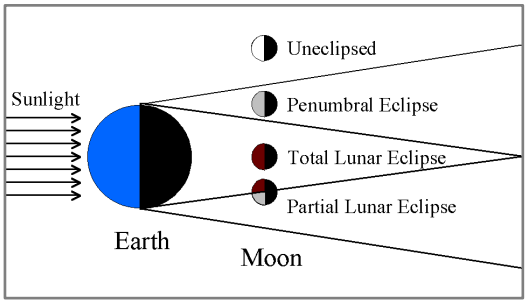
Types of lunar eclipses

1. Penumbral Lunar Eclipse

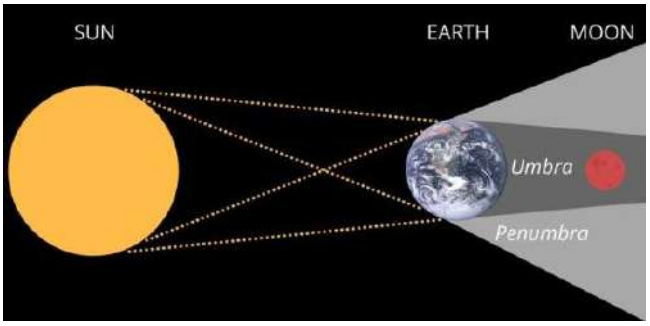
- The Moon passes through Earth's penumbral shadow.

2. Partial Lunar Eclipse

- A partial lunar eclipse happens when **part of the Moon** enters Earth's umbral shadow.
- In a partial eclipse, Earth's shadow appears very dark on the side of the Moon facing Earth.



3. Total Lunar Eclipse



- Total eclipses of the Moon happen at Full Moon when the Sun, Earth, and Moon are aligned to form a line.
- During a total lunar eclipse, **Earth's umbra completely covers the Moon.**
- The astronomical term for this **type of alignment is syzygy**.
- Lunar eclipses are safe to see with the naked and unaided eye.
- About 35% of all lunar eclipses in a calendar year are total lunar eclipses.
- On average, a total lunar eclipse can be seen from any given location **every 2.5 years.**
- **Note:** A lunar eclipse usually lasts for a few hours. At least two partial lunar eclipses happen every year, but total lunar eclipses are rare.

Flower Moon

- The term comes from the use by the native American tribes as it is the time of year when spring flowers appear in abundance.

Blood Moon

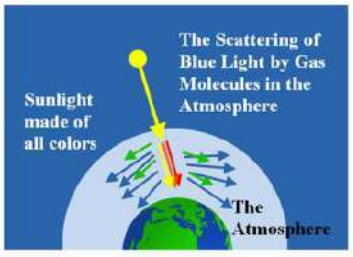
- A total lunar eclipse is sometimes called a Blood Moon, because of the reddish tinge the Full Moon takes on when fully eclipsed.
- Blood Moon is not a scientific term.

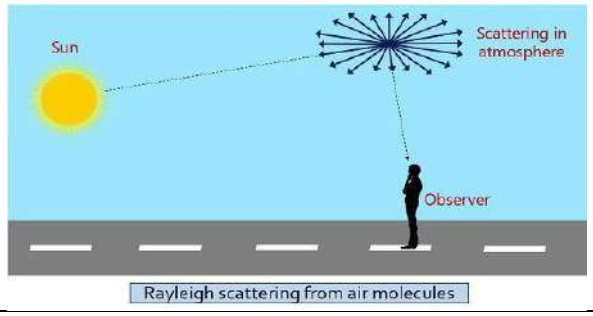
Why does the Moon turn red?

- A total lunar eclipse happens when the Moon travels through the Earth's umbra and blocks all direct sunlight from illuminating the Moon's surface.
- However, some sunlight still reaches the lunar surface indirectly, via the Earth's atmosphere, bathing the Moon in a reddish, yellow, or orange glow.
- As the Sun's rays pass through the atmosphere, some colors in the light spectrum—those towards the violet spectrum—are filtered out by a phenomenon called **Rayleigh scattering.**
- This is the **same mechanism that causes colorful sunrises and sunsets.**
- Red wavelengths are least affected by this effect, so the light reaching the Moon's surface has a reddish hue, causing the fully eclipsed Moon to take on a red color.
- Depending on the composition of the atmosphere, different parts of the light spectrum are filtered out, **so the Moon may also look yellow, orange, or brown during a total lunar eclipse.**

Rayleigh scattering

It is the scattering of light by particles in a medium, **without change in wavelength**. It accounts, for example, for the **blue colour of the sky, since blue light is scattered slightly more efficiently than red.**





NEO-01 AND SPACE DEBRIS

GS-III SCIENCE & TECHNOLOGY

Context

- Recently, China launched a **low Earth orbit robot prototype** called 'NEO-01'.
- It can **scoop up space debris** left behind by other spacecraft with a big net.

Details

- NEO-01, was launched on **Long March 6 rocket.**
- NEO-01 will use **a net to capture space debris** and then burn it with its **electric propulsion system**.
- The NEO-01, will also peer into deep space to observe small celestial bodies.
- The 30kg robot will pave the way for future technologies capable of mining on asteroids.

Propulsion System

- A propulsion system is a machine that produces thrust to push an object forward.
- Thrust is the force which moves a rocket through the air and through space.

Chemical Propulsion

- Chemical propulsion is propulsion in which the thrust is provided by the product of a chemical reaction, usually burning (or oxidizing) a fuel.

Electric Propulsion

- An electric propulsion system uses energy collected by either solar arrays or a nuclear reactor to generate thrust.
  - solar photovoltaic arrays, convert solar radiation to electrical power,
  - a nuclear source, such as a space-based fission drive, splits atomic nuclei to release large amounts of energy.
- This eliminates the needs of storing propellants onboard.

Space Debris

- Space junk is any piece of machinery or debris left by humans in space—principally in Earth orbit.
- These include dead satellites, fragments of rocket bodies and spacecraft etc.

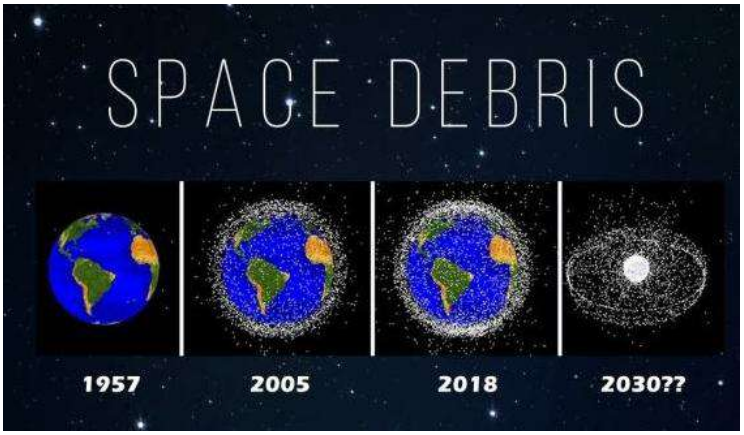
Concerns

- Can be a hazard to active satellites and spacecraft.
- At orbital velocities, even the tiniest pieces of debris can disable an operational satellite.
- Potential collision threat to the space station.
- Earth orbit could even become impassable if the risk of collision grows too high.

- It could hinder our ability to use weather satellites, and hence to monitor weather changes.
- Currently, an estimated 20,000 objects—including satellites and space debris—are crowding low-Earth orbit.

Kessler syndrome

- This is an idea proposed by NASA scientist Donald Kessler in 1978.
- It says if there is too much space junk in orbit, it could result in a chain reaction where more and more objects will collide and create new space junk in the process, to the point where Earth's orbit became unusable – a Domino Effect.
- 12 fragmentation events have already taken place every year for the past two decades.



Mitigation Measures

- Developing Reusable spacecrafts.
- Designing and building spacecraft that can better withstand the harsh environment of space without disintegrating;
- Releasing stored energy and fuel so that defunct spacecraft don't explode;
- Once a spacecraft's mission is over, moving it to a safer orbit. That is -
  - A **"graveyard orbit"** high above the low-Earth space.
- Bringing it down using laser into Earth's atmosphere to burn up on re-entry as a neat disposal system.
- Capture debris or de-orbit old satellites.
- Charge operators **"orbital-use fees"** for every satellite put into orbit.
- Careful choice of orbits
- Performing **'collision avoidance manoeuvres'.**
- Orbital lifetime reduction (accelerating the natural decay of space objects to reduce the time that they remain in orbit)
- International cooperation in the debris mitigation measures
- Contributing to the efforts of the **Inter-Agency Space Debris Coordination Committee (IADC)** and **United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS).**

Initiatives taken to tackle the problem

Inter-Agency Space Debris Coordination Committee

- IADC is an inter-governmental forum whose aim is to co-ordinate efforts to deal with debris in orbit around the Earth founded in 1993.

NORAD

- North American Aerospace Defense Command, is an initiative of the U.S. and Canada that shares selective debris data with many countries.

ClearSpace-1 Mission

- In this a "chaser" with its four robotic arms will grab the leftover of 2013 craft known as VESPA (Vega Secondary Payload Adapter) and drag it down to Earth's atmosphere where both will burn up.
- To be launched in 2025.

ELSA-d, Mission

- ELSA-d (End-of-Life Services b), will test technologies to capture an object in low-Earth orbit and move it to a lower altitude, where it will eventually burn up harmlessly in Earth's atmosphere.

Starship

- Space X Starship – the passenger-carrying spacecraft once ready can collect and de-orbit space junk apart as well.

ISRO's Efforts

'Project NETRA'

- It is an early warning system in space to detect debris and other hazards to Indian satellites.

Other

- ISRO's GSLV employs passivation of the Cryogenic Upper Stage at the end of its useful mission.
- ISRO's communication satellites are designed with adequate propellant margins for re-orbiting at the end of their useful life to a higher graveyard orbit.
- Successful example: INSAT-2C

SUTRA MODEL

GS-III SCIENCE & TECHNOLOGY

Context

- Scientists working on the SUTRA model have rejected media reports claiming that they had cautioned the Government regarding the second wave of the corona pandemic in March this year.

About

- SUTRA stands for **Susceptible, Undetected, Tested (positive) and Removed Approach.**
- It is a part of **National COVID 19 Supermodel Committee** formed by the Government of India to make projections about the spread of COVID 19 in India.
- Further it will help in making short and long term plans to defend the country from the dangerous disease caused due to the virus.

Parameters of SUTRA Model

- The following parameters are used to predict the course of the pandemic:
  - **Beta/contact rate** : It measures how many people an infected person infects per day. It is related to the **R0 value.**
  - **Reach:** It is a measure of the exposure level of the population to the pandemic.
  - **Epsilon:** It is the ratio of detected and undetected cases.

R0, pronounced "R naught," is a mathematical term that indicates how contagious an infectious disease is. It's also referred to as the reproduction number. As an infection is transmitted to new people, it reproduces itself.

The values:

If R0 is less than 1, each existing infection causes less than one new infection. In this case, the disease will decline and eventually die out.

If R0 equals 1, each existing infection causes one new infection. The disease will stay alive and stable, but there won't be an outbreak or an epidemic.

If R0 is more than 1, each existing infection causes more than one new infection. The disease will be transmitted between people, and there may be an outbreak or epidemic.

Miscalculation

- The committee accepted that it was unable to predict the exact nature of the second Covid wave in the country.

Flaws in SUTRA Model

- Ignored changing behavior of the virus.
- Relied on too many parameters, and recalibrated those parameters whenever its predictions "broke down".
- The Model is constantly changing its peak projections - of daily cases as well as active infections.
- Predictions of the SUTRA model are too variable to guide Government Policy.

- Lack of accounting for social or geographic heterogeneity undermined its validity.
- Non-stratification of the population undermined its validity.
- Contacts between different age groups were not accounted for.
- New variants of the virus were shown in the SUTRA model as an increase in the value of BETA parameters.
- As per the scientists, the Model is purely based upon parameter values ignoring reasons behind mutation of virus.

Way ahead

- Complete overhaul of the Model by experts for better prediction.
- Up-to-date serosurvey in the country to help estimate the percentage of immune population for **worst-case analysis**.
- A proper sero-survey also helps in knowing how far we are from **herd immunity**.
- Going forward, correct Sero Survey will remain a crucial piece of information for accurate prediction by initiatives like SUTRA Model.

Sero Surveys

Sero survey examines how many people in a population have been infected with COVID-19 and recovered from the same. It is done to gauge the prevalence of the virus in a particular area.

Method: The blood serum of a group of individuals is tested using an antibody test. It examines if an individual's immune system – body's defence against illness – has responded to the infection.

The **sero positive people break the chain of transmission** because they have immunity.

- Serum is the fluid portion of plasma remaining after coagulation of blood.
- Plasma is the yellowish fluid in blood. It consists chiefly of water (about 95% by volume). Other components include dissolved proteins (e.g. serum albumins, globulins, fibrinogen), glucose, clotting factors, electrolytes, hormones, carbon dioxide, and oxygen. Plasma serves as a medium to transport essential substances in blood.

Herd Immunity

When most of a population is immune to an infectious disease, this provides indirect protection—or population immunity (also called herd immunity)—to those who are not immune to the disease.

POSITRON AND POSITRON EXCESS PHENOMENON / GS-III SCIENCE & TECHNOLOGY

Context

- Researchers have resolved the mystery of the antimatter counterpart of the electrons called Positron and Positron Excess Phenomenon.

Antimatter

- Antimatter is the opposite of normal matter.
- More specifically, the sub-atomic particles of antimatter have properties opposite those of normal matter.
- The electrical charge of those particles is reversed.
- Antimatter was created along with matter after the Big Bang, but antimatter is rare in today's universe.

Why is it rare?

- The big bang had created matter and antimatter in equal amounts.
- When matter and antimatter meet, they annihilate, leaving nothing but energy behind.
- But there was **one extra matter particle for every billion matter-antimatter pairs.**
- Why matter came to dominate is a question that scientists have yet to discover.

Understanding Positron

- Atoms of normal matter have particles that are known as electrons (-ve), protons (+ve) and neutrons (no charge) inside of them.
- In the case of antimatter, the electrical charge is reversed relative to matter.
- **Anti-electrons (called positrons)** behave like electrons but have a positive charge.
- So, a Positron is an antimatter counterpart to an electron.
- It has the equal or same mass as an electron.
- Antiprotons, as the name implies, are protons with a negative charge.
- Antimatter is **NOT antigravity**.
- These antimatter particles (which are called "antiparticles") have been generated and studied at huge particle accelerators such as the Large Hadron Collider operated by CERN (the European Organization for Nuclear Research).

Some sources of Antimatter

- Cosmic rays, energetic particles from space.
- Above thunderstorms
- The average banana (rich in potassium) produces a positron roughly once every 75 minutes. This occurs because bananas contain a small amount of potassium-40.
- Our bodies also contain potassium-40, which means positrons are being emitted from us, too.
- Antimatter annihilates immediately on contact with matter, so these antimatter particles are **very short-lived**.

What is Positron Excess?

- Over the years astronomers have observed an excess of positrons having an energy of more than 10 giga-electronvolts, or 10 GeV.
- Positrons with such energy are lower in comparison to what astronomers expect.
- This behaviour of positrons between 10 and 300 GeV is what astronomers call the 'positron excess'.

Explanation byRaman Research Institute

- The Milky Way consists of giant clouds of molecular hydrogen.
- Cosmic rays, produced in supernovae explosions propagate through these clouds before they reach the Earth.
- Cosmic rays while propagating through the Milky Way galaxy interact with matter producing other cosmic rays, primarily electrons and positrons.
- They decay from their original forms and intermix, lose their energy by energising the clouds, and may also **get re-energised.**

Cosmic rays are **high-energy protons and atomic nuclei** that move through space at nearly the speed of light. They originate from the sun, from outside of the solar system in our own galaxy, and from distant galaxies.

FAKEBUSTER

GS-III SECURITY & DEFENSE

Context

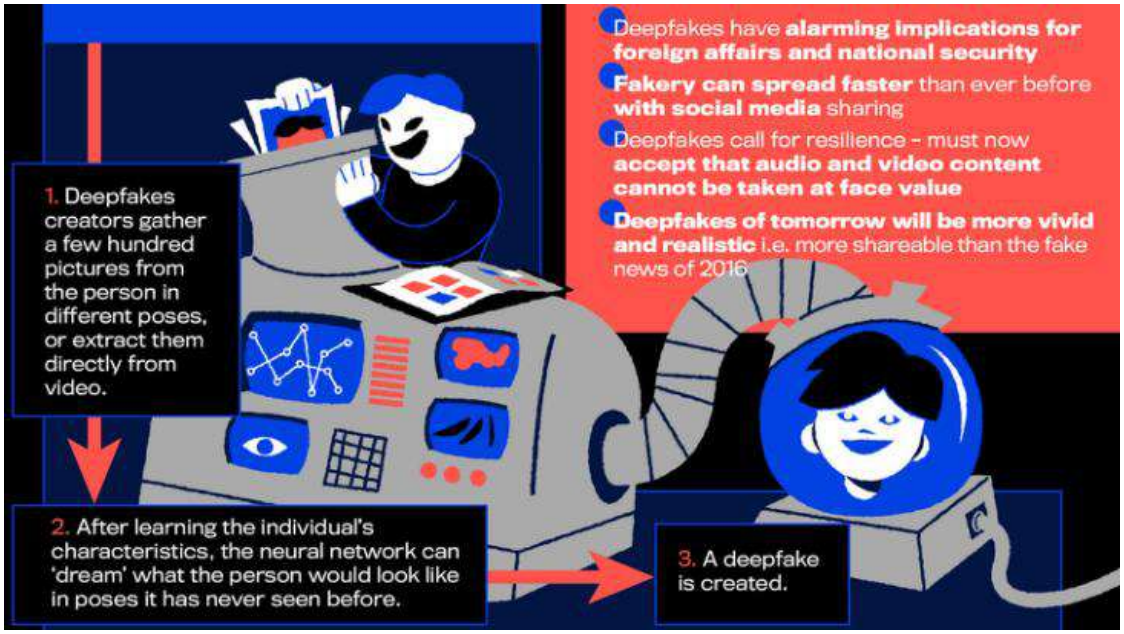
- The Indian Institute of Technology Ropar along with Australia based Monash University has developed a **unique detector named 'FakeBuster' to detect imposters attending a virtual conference without anybody's knowledge.**
- The detector can also find out **faces manipulated on social media to defame or make joke of someone.**
- This standalone solution would **enables a user to detect if another person's video is manipulated or spoofed during a video conferencing.**
- The **deepfake detection tool 'FakeBuster' works in both online and offline modes.**

What is Deepfake?

- They are **synthetic media** in which a person in an existing image or video is replaced with someone else's likeness.
- It leverage powerful techniques from **machine learning and artificial intelligence** to manipulate or generate visual and audio content with a high potential to deceive.
- The main machine learning methods used to create deepfakes are based on deep learning and involve **training generative neural network architectures.**
- Deepfakes rely on a type of neural network called an **auto encoder.**
- Deepfakes have garnered widespread attention for their uses in celebrity pornographic videos, revenge porn, fake news, hoaxes, and financial fraud.

Fabricating content

- The cyber world has been facing the challenge of deepfakes for a while now.
- **AI is used** for fabricating audios, videos and texts to show real people saying and doing things they never did, or creating new images and videos.
- These are done so convincingly that it is hard to detect what is fake and what is real.
- Detection can often be done **only by AI-generated tools**.
- Deepfakes can target anyone, anywhere. They are used to **tarnish reputations, create mistrust, question facts, and spread propaganda.**
- According to **Section 230 of the Communications Decency Act of 1996,** a law that protects freedom of expression and innovation on the Internet, "**No provider or user** of an interactive computer service **shall be treated as the publisher or speaker** of any information provided by another information content provider."
- This means that the **companies are not responsible** for the posts on their platforms.


Deepfakes have alarming implications for foreign affairs and national security
Fakery can spread faster than ever before with social media sharing
Deepfakes call for resilience - must now accept that audio and video content cannot be taken at face value
Deepfakes of tomorrow will be more vivid and realistic i.e. more shareable than the fake news of 2016
1. Deepfakes creators gather a few hundred pictures from the person in different poses, or extract them directly from video.
2. After learning the individual's characteristics, the neural network can 'dream' what the person would look like in poses it has never seen before.
3. A deepfake is created.

Adverse impact of deepfake

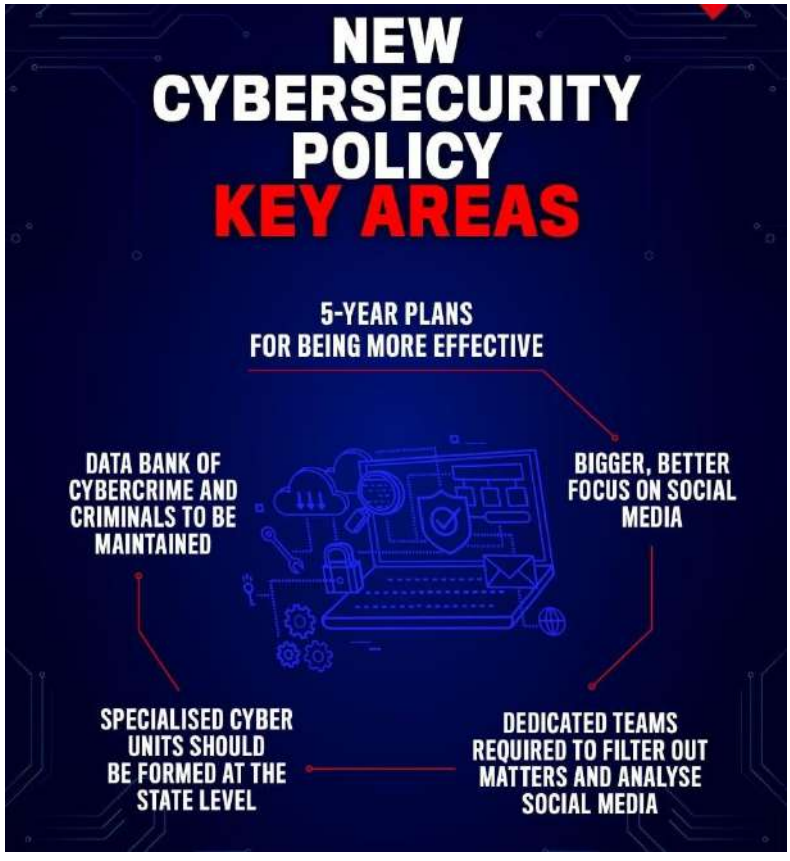
- It has alarming implication on **national security, foreign affairs and safety & security of women and children.**
- Another area of concern is **financial scams.** Audio deepfakes have already been used to clone voices and convince people they are talking to someone trusted and defraud them.
- **It breaches privacy of the people and reduces trust in society.**
- **Issues of identity theft** is also a concern.

India's condition

- India also faces the same problem.
- So far, it **has not enacted any specific legislation** to deal with deepfakes, though there are some provisions in the **Indian Penal Code** that **criminalise certain forms of online/social media content** manipulation.
- The **Information Technology Act, 2000** covers certain cybercrimes.
- However, this law and the **Information Technology Intermediary Guidelines (Amendment) Rules, 2018** are **inadequate** to deal with content manipulation on digital platforms.
- In 2018, the government proposed rules to curtail the misuse of social networks.
- Social media companies voluntarily agreed to take action to prevent violations during the 2019 general election.
- The Election Commission issued instructions on social media use during election campaigns.
- However, reports show that social media platforms like WhatsApp were used as "vehicles for misinformation and propaganda" by major political parties during the election.

New tools

- This is worrying as existing laws are clearly inadequate to safeguard individuals and entities against deepfakes and **only AI-generated tools can be effective in detection**.
- As innovation in deepfakes gets better, AI-based automated tools must be invented accordingly.
- **Blockchains are robust against many security threats** and **can be used to digitally sign and affirm the validity of a video or document.**
- **Educating media users** about the capabilities of AI algorithms could help.
- Indian government has launched the **National Cyber Security Strategy 2020**for **ensuring a safe, secured, trusted and resilient cyber space.**


NEW CYBERSECURITY POLICY KEY AREAS
5-YEAR PLANS FOR BEING MORE EFFECTIVE
DATA BANK OF CYBERCRIME AND CRIMINALS TO BE MAINTAINED
BIGGER, BETTER FOCUS ON SOCIAL MEDIA
SPECIALISED CYBER UNITS SHOULD BE FORMED AT THE STATE LEVEL
DEDICATED TEAMS REQUIRED TO FILTER OUT MATTERS AND ANALYSE SOCIAL MEDIA

Measures in place to prevent deepfake technology from adversely affecting masses?

- In July 2020, the University of Washington and Microsoft convened a workshop with experts to discuss how to prevent deepfake technology from adversely affecting us.
- The workshop identified six themes:

a) deepfakes must be **contextualised** within the broader framework of malicious manipulated media, computational propaganda and disinformation campaigns;

b) deepfakes cause multidimensional issues, which **require a collaborative, multi-stakeholder response that require experts in every sector to find solutions**;

c) detecting deepfakes is hard;

d) journalists **need tools to scrutinise images**,

video and audio recordings for which they need training and resources;

e) **policymakers must understand how deepfakes can threaten polity, society, economy, culture, individuals and communities**; and

f) the idea that the mere existence of deepfakes causes enough distrust that any true evidence can be dismissed as fake is a major concern that needs to be addressed.

Conclusion

- In today's world, disinformation comes in varied forms, so no single technology can resolve the problem.
- As deepfakes evolve, AI-backed technological tools to detect and prevent them must also evolve.

SOLAR WINDS-STYLE HACK

GS-III SECURITY & DEFENSE

Context

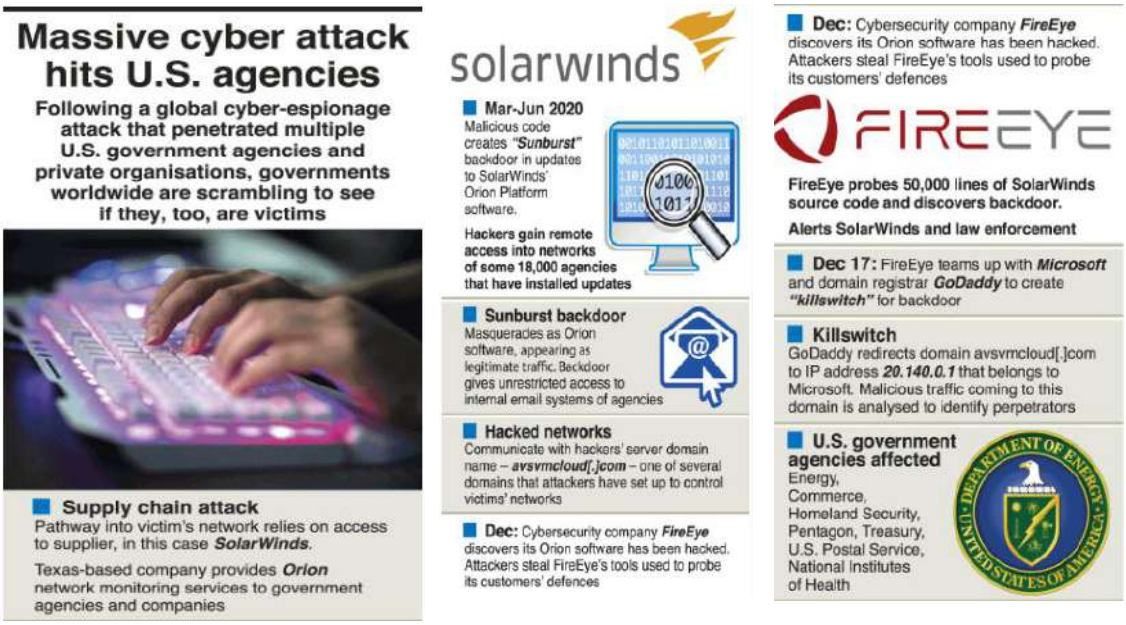
- 78% companies worldwide expect another Solar Winds-style hack, one of the most large-scale **supply chain attacks** to date that affected over 18,000 organisations.
- It is noted that an increase in remote work and expansion in usage of cloud and digital technologies could boost cyberattacks.
- Remote workers are harder to secure.
- At least 95% companies perform various assessments of a vendor's security but still the existing security checks failed to stop the SolarWinds attack.

What is this 'Solar Winds hack'?

- FireEye, a a publicly traded cybersecurity company called it a **state-sponsored attack**, although it did not name Russia.
- It said the attack was carried out by a **nation "with top-tier offensive capabilities"**, and "the attacker primarily sought information related to certain government customers."
- It also said the methods used by the attackers were novel.
- FireEye named this cyber attack as **Campaign UNC2452**, as it was not limited to the company but had targeted various **"public and private organisations** around the world".
- This is called as a**'Supply Chain' attack**, as instead of directly attacking the federal government or a private organisation's network, the hackers target a **third-party vendor**, which supplies software to them.

What is Hacking?

- Hacking is an **unauthorized entry into a network or a computer** to steal or manipulate information, data or files.
- The person involved in this process is named as a hacker.


Massive cyber attack hits U.S. agencies
Following a global cyber-espionage attack that penetrated multiple U.S. government agencies and private organisations, governments worldwide are scrambling to see if they, too, are victims
Supply chain attack
Pathway into victim's network relies on access to supplier, in this case SolarWinds.
Texas-based company provides Orion network monitoring services to government agencies and companies
solarwinds
Mar-Jun 2020
Malicious code creates "Sunburst" backdoor in updates to SolarWinds' Orion Platform software.
Hackers gain remote access into networks of some 18,000 agencies that have installed updates
Sunburst backdoor
Masquerades as Orion software, appearing as legitimate traffic. Backdoor gives unrestricted access to internal email systems of agencies
Hacked networks
Communicate with hackers' server domain name – avsvmcloud[.]com – one of several domains that attackers have set up to control victims' networks
Dec: Cybersecurity company FireEye discovers its Orion software has been hacked. Attackers steal FireEye's tools used to probe its customers' defences
Dec: Cybersecurity company FireEye discovers its Orion software has been hacked. Attackers steal FireEye's tools used to probe its customers' defences
FIREEYE
FireEye probes 50,000 lines of SolarWinds source code and discovers backdoor.
Alerts SolarWinds and law enforcement
Dec 17: FireEye teams up with Microsoft and domain registrar GoDaddy to create "killswitch" for backdoor
Killswitch
GoDaddy redirects domain avsvmcloud[.]com to IP address 20.140.0.1 that belongs to Microsoft. Malicious traffic coming to this domain is analysed to identify perpetrators
U.S. government agencies affected
Energy, Commerce, Homeland Security, Pentagon, Treasury, U.S. Postal Service, National Institutes of Health

- Computer hacking is done using several types of programs such as Rootkit, Trojan, Keylogger etc.

- Hackers also employ techniques like **browser hijacks, spoofing, phishing** etc. to capture user's personal or financial details.

Well-known methods of hacking

Phishing

- This implies replicating the original website so that the unsuspecting user enters the information like account password, credit card details, which the hacker seizes and misuses.
- The banking websites are the frequent target for this.

Virus

- These are released by the hacker into the files of the website once they enter into it.
- The purpose is to corrupt the information or resources on the website.

UI redress

- In this method the hacker creates a fake user interface and when the user clicks with the intent of going to a certain website, they are directed to another site altogether.

Cookie theft

- Hackers accesses the website using malicious codes and steal cookies which contain confidential information, login passwords etc.

DNS spoofing

- This basically uses the cache data of a website or domain that the user might have forgotten about.
- It then directs the data to another malicious website.

How to guard against hacking?

- **Virtual Private Networks (VPN)** is a protocol by which corporate networks connect to offsite and remote locations through a point to point tunnel like connectivity.
- Normally **security firewalls** are placed at multiple levels of the network and security policies are defined at the highest level leading to a near to 100 % security coverage.
- Download software from authorized websites.
- Do not click on random email attachments.
- Scan all types of hard drives before running
- Anti-hacking software.

ISRAEL'S IRON DOME ROCKET DEFENCE SYSTEM

GS-III SECURITY & DEFENSE

Context

- The Iron Dome aerial defence system just intercepted a Hamas Unmanned Aerial Vehicle (UAV) that crossed from Gaza into Israel.

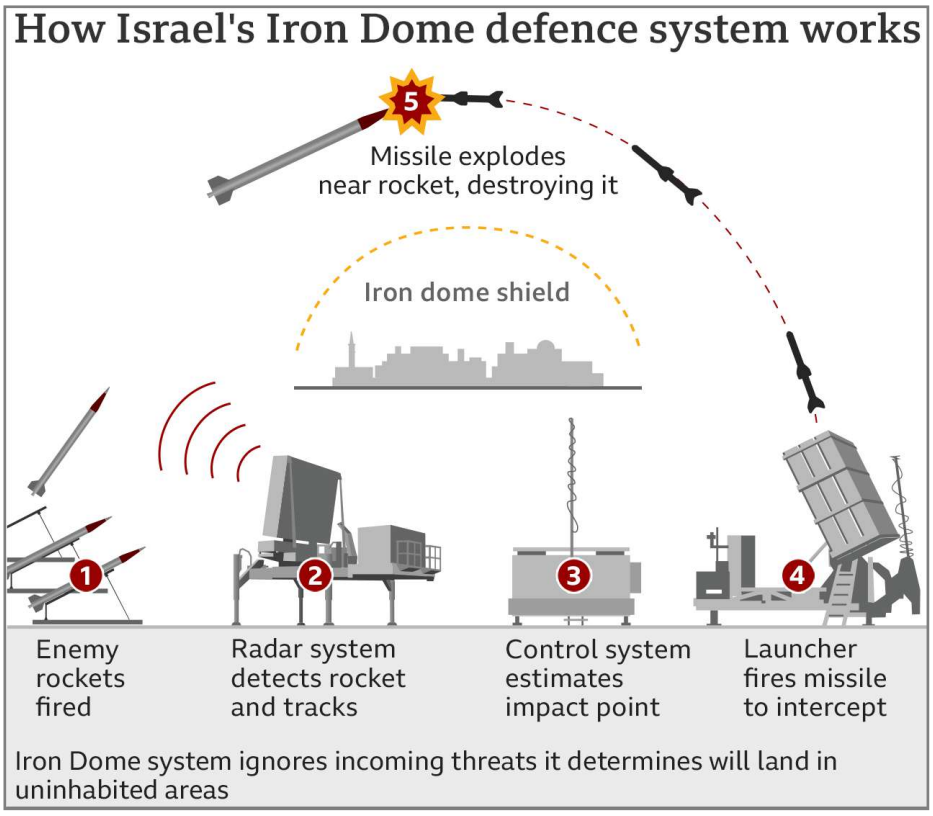
What is Iron Dome?

- Iron Dome is a **multi-mission system** capable of **intercepting rockets, artillery, mortars and Precision Guided Munitions** like very short range air defence (V-SHORAD) systems as well as aircraft, helicopters and Unmanned Aerial Vehicles (UAV) **over short ranges of up to 70 km.**
- It is an **all-weather system and can engage multiple targets simultaneously and can be deployed over land and sea.**
- Iron Dome is **jointly manufactured by Rafael Advanced Systems** and has been in service with Israeli Air Force since 2011.

How does it work?

- An Iron Dome battery consists of a **battle management control unit, a detection and tracking radar and a firing unit** of three vertical launchers, with 20 interceptor missiles each.

- The interceptor missile uses a proximity fuse to detonate the target warhead in the air.
- One of the system's important advantages is **its ability to identify the anticipated point of impact of the threatening rocket,** to calculate whether it will fall in a built-up area or not, and to decide on this basis whether or not to engage it.
- This prevents unnecessary interception of rockets that will fall in open areas and thus not cause damage.
- The **I-DOME is the mobile variant with all components on a single truck and C-DOME is the naval version for deployment on ships.**


How Israel's Iron Dome defence system works
5
Missile explodes near rocket, destroying it
Iron dome shield
1
2
3
4
Enemy rockets fired
Radar system detects rocket and tracks
Control system estimates impact point
Launcher fires missile to intercept
Iron Dome system ignores incoming threats it determines will land in uninhabited areas

What are the limitations of this system?

- The system has a **'saturation point'**.
- It is capable of engaging a certain (unpublished) number of targets at the same time, and no more.
- One of the possible limitations is the **system's inability to cope with very short range threats** as estimates put the Iron Dome's minimum interception range at 5-7 kilometres.

P-8I PATROL AIRCRAFT

GS-III SECURITY & DEFENSE

Context

- The U.S. State Department approved the proposed sale of six P-8I patrol aircraft and related equipments.

Background

- In November 2019, the Defence Acquisition Council, chaired by Defence Minister approved the procurement of the **long-range maritime surveillance aircraft manufactured by Boeing.**
- The Government of India has requested to buy six (6) P-8I Patrol aircraft.
- The Indian Navy is currently in the process of inducting the four P-8Is contracted under the offset clause in 2016.
- With India having signed the **Communications Compatibility and Security Agreement (COMCASA) foundational agreement** with the U.S., the six aircraft will come fitted with **encrypted systems**.
- The P-8I is based on the **Boeing 737 commercial aircraft and India was its first international customer.**

What is COMCASA?

- COMCASA stands for **Communications Compatibility and Security Agreement** and is one of the four foundational agreements that the **U.S. signs with allies and close partners to facilitate interoperability between militaries and sale of high end technology.**
- COMCASA is an India-specific version of the Communication and Information on Security Memorandum of Agreement (CISMOA).
- It comes into force immediately and is **valid for a period 10 years.**

- COMCASA allows **India to procure transfer specialised equipment for encrypted communications** for US origin military platforms like the C-17, C-130 and P-8Is.
- Currently, these platforms use commercially available communication systems.

What is offset clause?

- A defence offset policy was promulgated under the **Defence Procurement Procedure** (DPP-2005), with the objective that it **would bring high-end technology to the country and help build the domestic defence industry.**
- Under the offset clause, **a foreign company that wins a defence deal is supposed to invest a part of the contract value in the country,** thus developing skills and bringing in technology, while also generating employment.
- Under the DPP 2006, the offset value was fixed at 30% of defence deals above Rs. 300 crores, which was revised to Rs. 2,000 crores in DPP 2016 for full-import deals.
- The first offset contract was signed in 2007.

Defence Acquisition Council (DAC)

- On the recommendations of Group of Ministers on **"Reforming the National Security System,"** the Ministry of Defence had set up broad structures and systems to deal with acquisitions on the Capital Account.
- The DAC, under the chairmanship of Defence Minister was constituted for **overall guidance of the defence procurement planning process.**
- The **objective** of the Defence Acquisition Council is **to ensure expeditious procurement of the approved requirements of the Armed Forces in terms of capabilities sought, and time frame prescribed, by optimally utilizing the allocated budgetary resources.**

SACRED GROVES

Why in news?

- For centuries, **'Kovil Kaadugal'** or sacred groves looked after and maintained by the local communities residing there, who made use of the age-old traditions and knowledge to conserve them.
- However, many sacred groves in the northern region are now fast deteriorating due to rapid urbanisation and land scarcity.

What are sacred groves?

- Sacred groves refer to a **piece of natural vegetation that is protected by a certain community due to religious reasons**.
- The area is **usually dedicated to a local deity**. As a result, local communities tend to take responsibility to protect and nurture the area.
- According to these protections, **hunting and deforestation in these areas are banned** but other activities with a more sustainable process such as honey and deadwood collection are allowed.
- The introduction of **Wild Life (Protection) Amendment Act, 2002, provides government protection to these lands.**

Distribution of Sacred groves in India

- India contains many sacred groves.
- A strong concentration of these groves is found in **Himachal Pradesh and Kerala**. Other places where one can find sacred groves are **Rajasthan, Bihar, Meghalaya and Maharashtra.**
- **Himachal Pradesh:** With the highest number of sacred groves, Himachal Pradesh is meticulous and extremely careful about these natural settings**. Shipin is believed to be the largest deodar grove** and contains trees that are thousands of years old.
- **Maharashtra:** The groves in Maharashtra are called **deorais or devrais** and are concentrated in Pune, Ratnagiri, Raigad and Kolhapur.
- **Bihar:** Known as **sarnas**, the groves in Bihar are fairly small and only consist of 2 to 20 trees.

- **Rajasthan:** The largest area is covered by oraans that provide a different set of biodiversity in distinctive areas.

- **Meghalaya:** Home to some of the richest groves in the country, Khasi hills in Meghalaya have one grove called law **kyntangs** in almost every village.
- These rare and endangered plant species found in sacred groves harbour rich biodiversity and are rich repositories of valuable medicinal plants. The groves also support a wide variety of birds and small mammals.

Economic and Ecological benefits:

Traditional uses

- One of the most important traditional uses of sacred groves was that it acted as a repository for various **Ayurvedic medicines**.
- Other uses involved a source of replenishable resources like fruits and honey. However, in most sacred groves it was taboo to hunt or chop wood.
- The vegetation cover helps reduce soil erosion and prevents desertification, as in Rajasthan.
- The groves are often associated with ponds and streams, and meet water requirements of local communities.
- They sometimes help in **recharging aquifers** as well.

Modern uses

- In modern times, sacred groves have become **biodiversity hotspots**, as various species seek refuge in the areas due to progressive habitat destruction, and hunting.
- Sacred groves often contain **plant and animal species** that have become extinct in neighboring areas.
- They harbor **great genetic diversity**. Besides this, **sacred groves in urban landscapes act as "lungs"** to the city as well, providing much needed vegetation cover.

Threats to the grove

- **Urbanization, over-exploitation of resources** (like overgrazing and excessive firewood collection), and **environmental destruction** due to religious practices.
- Other threats to the sacred groves include **invasion by invasive species**, like the invasive weeds Chromolaena odorata, Lantana camara and Prosopis juliflora.

How to conserve these sacred groves?

- There is a urgent need to manage and restore degraded sacred groves with the **active and voluntary participation of local communities.**
- Micro strategies such as **designing and developing various community based programmes** to revive community interest in conservation and **giving knowledge and training regarding the ecology of these groves can be utilised.**
- These indigenous forest trees varieties can be used to **create a seed bank**, which further can be **used for recreating sacred groves**.
- State government and non-state actors like NGOs should work with local villagers to protect such groves.

ECO SENSITIVE ZONE (ESZ)

GS-III ENVIRONMENT & ECOLOGY

Context

- The ministry of Environment, Forest and Climate Change has notified 48.32 sq km around the **Thane Creek Flamingo Sanctuary (TCFS)** as an **eco sensitive zone (ESZ)**.
- The ESZ is meant to **act as a buffer for protected areas and reduces developmental pressures around a wildlife sanctuary or national park.**

More about news

- About 1,400 hectare of mangrove forests towards Navi Mumbai side of the ESZ were not included in the original ESZ because they had **already been declared as reserve forests under the Indian Forest Act and are covered under Coastal Regulation Zone (CRZ).**

- Highly polluting industries and mining activities among others are prohibited, certain activities, which will be regulated, are listed in the final notification.
- They include construction of hotels and resorts as well promotion of eco-tourism – albeit not within 1 km of the boundary of the protected area or up to the extent of ESZ, whichever is nearer.
- Agro-forestry, use of eco-friendly transport, cottage industries and organic farming will also be promoted.

Thane Creek Flamingo Sanctuary (TCFS)

- The TCFS consists of 896 hectares of mangrove forests and 794 hectares of water bodies.
- It is on the western bank of the creek, between the Airoli and the Vashi bridges connecting Mumbai and Navi Mumbai.
- It came into being in August 2015 and is **Maharashtra's second marine sanctuary, after Malvan.**
- The TCFS has been attracting flamingos in large numbers since 1994.
- In all, 200 species have been reported, even **globally threatened species such as the greater spotted eagle and others such as osprey**.
- Other birds found here are the Pied avocet, western reef heron, black-headed ibis, common redshank, marsh sandpiper, common greenshank, curlew sandpiper, brown-headed gull, whiskered, gull-billed, Caspian and little terns.

What does Eco-Sensitive Zone mean and what is its purpose?

- Eco-Sensitive Zone means the **fragile area that exists within 10 kilometres of protected areas like National Parks and Wildlife Sanctuaries.**
- The purpose of marking an Eco-Sensitive Zone is **to create a kind of shock-absorber around the protected areas.**
- They are also known as **Ecologically Fragile Areas (EFAs) and are notified around Protected Areas, National Parks and Wildlife Sanctuaries.**
- **They also act as a transition zone from areas of high protection to areas involving lesser protection.**

Who declares the Eco-Sensitive Zone around protected areas?

- The Eco-Sensitive Zone around protected areas are declared by the **Ministry of Environment Forests and Climate Change (MoEFCC), Government of India.**

What are the activities prohibited around ESZ?

- Commercial mining, stone quarrying, crushing units, setting up industries that cause pollution, establishment of hydro-electric projects, commercial use of firewood, solid waste disposal or wastewater disposal and many other activities are prohibited or banned around ESZ.

NETWORK FOR GREENING THE FINANCIAL SYSTEM

Context

- The Reserve Bank of India (RBI) has joined the Network for Greening the Financial System.
- The RBI has joined to **share best practices and contribute to the development of environment and climate risk management** in the financial sector to mobilise mainstream finance to support the **transition towards a sustainable economy**.

Network for Greening the Financial System

- It is a voluntary group of central banks.
- The group consists of 62 central banks and aims to help members design policies that incorporate environment and climate risk resilience in the financial sector.

Climate Change risks

- Climate change poses **risks to financial stability** in the form of **physical risks (extreme and slow onset weather events) and transition risks** (caused by changes in policy, legal and regulatory frameworks, consumer preferences and technological development while transitioning to a low-carbon economy).
- A lack of clarity about true exposures to specific climate risks for physical and financial assets, coupled with uncertainty about the size and timing of these risks, creates major vulnerabilities.
- **New Zealand became the first country** to announce a **law that will require financial firms to disclose climate-related risks and opportunities.**
- The law seeks **to bring climate risks and resilience into the heart of financial and business decision-making**

Global Risks Report 2021

- The **World Economic Forum's (WEF) Global Risks Report 2021** noted climate action failure and infectious diseases as the highest risks (risks with greatest impact and likelihood).
- The report notes that "**both the pandemic and climate change impacts are likely to play out disproportionately across countries, exacerbated by long-existing inequalities**" — with a short window to redress these disparities by not delaying the shift towards a greener economy despite the pandemic.
- Current climate finance system for developing countries is grossly inadequate.
- The WEF projected that by 2020, about **$5 trillion will be needed to be invested annually in green infrastructure, far exceeding the current floor commitment of $100 billion annually.**
- The $100 billion per year by 2020 commitment, to be provided as development assistance in the form of public funding from developed countries, is seen as the 'bedrock' of the entire international climate finance system.

How to leverage private sector climate financing?

- To create climate positive actions, the starting point is to make **private sector account for and mitigate systemic risks**.
- Conventional economic models account only for linear risks (such a price volatility, business risks, legal risks, etc) which are critically insufficient while considering the imperative of low-carbon growth pathways.
- Private sector across the world require to alter processes such that their investments do not (at the very least) exacerbate climate change.
- Climate action in the private sector will need to focus on and developing **three key areas progressively:**
  - **Building reporting and disclosure frameworks** that assess whether companies' actions that cause negative externalities are mitigated.
  - **Increasing alignment of private sector with United Nations sustainable development goals** to create positive impact.

  - **Increasing alignment with decarbonisation pathways** according the 21st Conference of Parties agreement to recognise the pace of change required.
- Substantial amount of finance will also be needed to mitigate transition risks of private companies, including in developing countries including India, that arise from the process of adjustment towards a greener economy.
- India's promoting **local innovations scheme for solar and energy storage** is a good example of creating industries that are eligible to receive climate-aligned finance and becoming a manufacturing hub.

What could India's response be?

- A World Bank report estimates that losses to India's gross domestic product by 2050 due to climate change could be $1,178 billion.
- The RBI has noted the importance of **climate-related financial disclosures and private green finance as necessary to generate the enormous amounts of investments** are required to combat climate change and bring about a transformation towards sustainable and low carbon development.
- The most important international initiative to make private sector contribute to climate positive action and become resilient to climate risks are the recommendations of the **Task Force on Climate-related Financial Disclosures (TFCD).**
- This is now widely recognised as the **gold standard for global business sustainability reporting frameworks, providing standardised and comprehensive guidelines for corporate climate disclosures.**
- About 32 Indian organisations have signed up for TFCD, including the Mahindra Group, Wipro, Confederation of Indian Industries, National Stock Exchange, DLF, Havells India, Hero MotoCorp, Piramal Enterprises among others.

Conclusion

- Indian government needs to **introduce guidelines and regulations to standardise and mandate climate-related disclosures in all financial statements** and push private companies and financial institutions to manage their exposure to climate risks in their portfolios and operations.
- This would **help not only in increasing resilience of Indian companies to face physical and transition risks of climate change** but also in facilitating **greater climate finance flows while minimising 'greenwashing'.**

BIODIESEL MADE FROM USED COOKING OIL

GS-III ENVIRONMENT & ECOLOGY

Context

- Indian Oil Corporation has kicked-off the supply of diesel that is blended with biodiesel made from used cooking oil.

RUCO (Repurpose Used Cooking Oil) Initiative

- This initiative will garner **substantial economic benefits** for the nation by shoring up indigenous Biodiesel supply, **reducing import dependence**, and **generating rural employment**
- Under the initiative, OMCs offer periodically incremental price guarantees for five years and extend off-take guarantees for ten years to prospective bidders.
- Feedstock availability in biodiesel is a challenge, and leveraging used cooking oil (UCO) can be a major breakthrough that will enable us to reach the target of 5 per cent Biodiesel blending,"

Total Polar Compounds

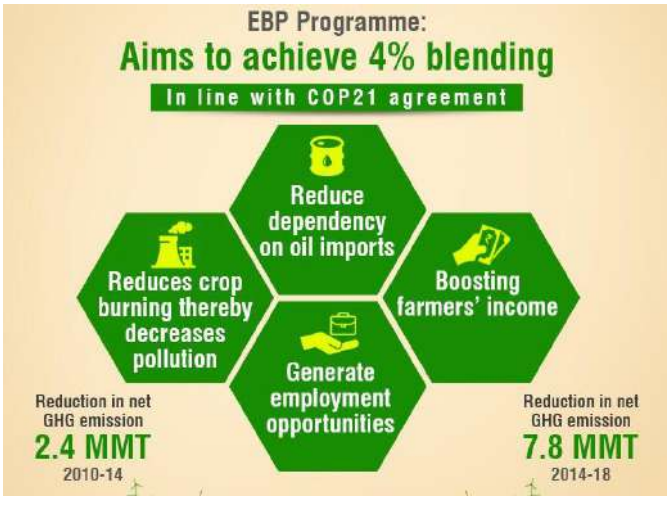
- During frying, several properties of oil are altered, **Total Polar Compounds (TPC)** are formed on repeated frying.
- The toxicity of these compounds is associated with several diseases such as hypertension, atherosclerosis, Alzheimer's disease, liver diseases. Therefore, it is essential to monitor the quality of vegetable oils during frying.

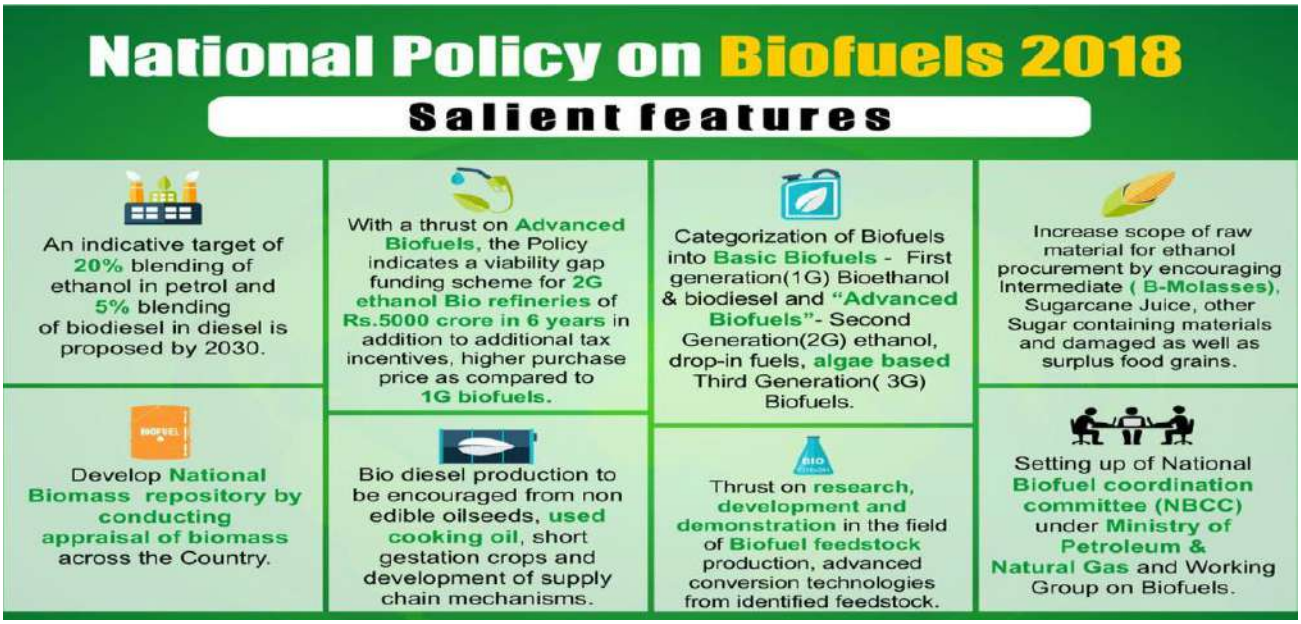
- In order to safeguard consumer health, **FSSAI has fixed a limit for Total Polar Compounds at 25 percent** beyond which the vegetable oil shall not be used.
- From 1st July, 2018 onwards, all Food Business Operators (FBOs) are required to monitor the quality of oil during frying by complying with the said regulations.
- **FSSAI is implementing an EEE Strategy -**
  - **Education**
  - Enforcement
  - Ecosystem
- to divert Used Cooking Oil from the food value chain and curb current illegal practices.
- The EEE Strategy approach ensures good health and welfare for all 130-crore citizens, aiding energy security, climate change mitigation, and leading to environmentally sustainable development.

India's Biofuel Economy

- India is one of the fastest growing economies and the **third largest consumer of primary energy in the world after the US and China.**
- India's fuel energy security will remain vulnerable until alternative fuels are developed based on renewable feedstocks.
- The government of India targets reducing the country's carbon footprint by 30-35% by the year 2030.
- These targets will be achieved through a **five-pronged strategy** which includes:
  - Increasing domestic production
  - adopting biofuels and renewable
  - implementing energy efficiency norms
  - improving refinery processes and
  - achieving demand substitution.
  - The government of India has proposed a target of **20% blending of ethanol in petrol and 5% blending of biodiesel in diesel by 2030** and introduced multiple initiatives to increase indigenous production of biofuels.

RUCO
REPURPOSE USED COOKING OIL
fssai
Use vegetable oils for frying.
Ideally, use cooking oil only once for frying.
Used frying oil can be filtered and reused once for making curries.
Avoid reusing cooking oil.
Guard your health.
Consume used frying oil within two days.
Fry at the lowest frying temperature. Oil should not give off smoke.
While frying, remove food particles frequently from the oil before they turn black.
Use a fryer or utensils made of material such as stainless steel for frying.
Avoid iron pans for frying to prevent unpleasant taste or odour.




National Policy on Biofuels 2018
Salient features
An indicative target of 20% blending of ethanol in petrol and 5% blending of biodiesel in diesel is proposed by 2030.
With a thrust on Advanced Biofuels, the Policy indicates a viability gap funding scheme for 2G ethanol Bio refineries of Rs.5000 crore in 6 years in addition to additional tax incentives, higher purchase price as compared to 1G biofuels.
Categorization of Biofuels into Basic Biofuels - First generation(1G) Bioethanol & biodiesel and "Advanced Biofuels"- Second Generation(2G) ethanol, drop-in fuels, algae based Third Generation(3G) Biofuels.
Increase scope of raw material for ethanol procurement by encouraging Intermediate (B-Molasses), Sugarcane Juice, other Sugar containing materials and damaged as well as surplus food grains.
Develop National Biomass repository by conducting appraisal of biomass across the Country.
Bio diesel production to be encouraged from non edible oilseeds, used cooking oil, short gestation crops and development of supply chain mechanisms.
Thrust on research, development and demonstration in the field of Biofuel feedstock production, advanced conversion technologies from identified feedstock.
Setting up of National Biofuel coordination committee (NBCC) under Ministry of Petroleum & Natural Gas and Working Group on Biofuels.

What are 1G and 2G biofuels?

- 1G Bioethanol plants utilise sugarcane juice and molasses, by products in the production of sugar, as raw material.
- 2G plants utilize surplus biomass and agricultural waste to produce Bioethanol.
- **Third generation biofuels** - These are produced from **micro-organisms** like algae.
- **Fourth generation biofuels** - These are produced from **genetically modified (GM) algae** to enhance biofuel production.
- The prices of both sugarcane and bio-ethanol are set by the central government.

Benefits of India's ethanol blending mandates include

- **Reduce Import Dependency**: Will saves foreign exchange (forex).
- **Cleaner Environment**: Reducing crop burning and converting agricultural residues/wastes to biofuels will further reduce greenhouse gas (GHG) emissions.
- **Health Benefits:** Prolonged reuse of cooking oil for preparing food, particularly in deep-frying, is a potential health hazard and can lead to many diseases. Used cooking oil (UCO) is a potential feedstock for biodiesel and its use for making biodiesel prevents reuse of UCO within the food industry.
- **Solid Waste Management:** There are technologies available, which can convert solid waste and plastics to drop-in fuels.
- **Infrastructural Investment in Rural Areas:** Establishing additional 2G biorefineries across the country will spur infrastructural investment in rural areas.
- **Employment Generation:** 2G biorefinery can contribute 1200 jobs across plant operations, village level entrepreneurs and supply chain management.
- **Additional Income to Farmers:** By adopting 2G technologies, agricultural residues/wastes that otherwise are burnt can be converted to ethanol. Farmers can realise an additional revenue source if markets are developed for these residues/wastes.

Major programs supporting the development of biofuels production and use in India include

- **Viable gap funding (VGF)** for commercial scale 2G ethanol plants under **Pradhan Mantri JI-VAN Yojana**
- Financial assistance for demonstration scale 2G integrated bioethanol under Pradhan Mantri JI-VAN Yojana.
- Grants for research and development from DBT to 5 Centres for Excellence in the Bioenergy area.
- **The National Policy on Biofuels 2018** specifically promotes advanced biofuels to achieve a target of 20% blending of biofuels with fossil-based fuels by 2030.

Measures that can improve Bio-fuel economy

- Currently in India, Biofuel development is centred around the cultivation of Jatropha plant seeds. There is **need to develop new feedstock for biofuels.**
- To facilitate the blending of biofuels with conventional fuels, there is need to set up advanced biorefineries.
- Research and development should be promoted to support generation of bio-fuel from waste. As it will ensure realizing the goal of waste management and waste to energy.

SINGLE-USE PLASTIC

GS-III ENVIRONMENT & ECOLOGY

Context

- A detailed report sheds light on who makes all this single-use plastic, 130 million tons a year at last count, and who makes money from it.

Some highlights of the report

- **Governments are also big stakeholders in this industry.**
- About 40% of the largest single-use plastic makers are partly owned by governments, including China and Saudi Arabia.
- A big challenge is that the **economics favor more plastic production.**
- It is far cheaper to make a soda bottle out of newly produced plastic than from recycled plastic.
- European Union issued a directive calling for consumer brands to use at least 30% recycled content in plastic bottles by 2025.

What is Plastic Pollution?

- Plastic pollution occurs when **plastic has gathered in an area and has begun to negatively impact the natural environment** and create problems for plants, wildlife, and even the human population.
- This includes killing plant life and posing dangers to local animals.
- Plastic is an incredibly useful material, but it is not biodegradable.

Various Causes of Plastic Pollution

- As plastic is **less expensive**, it is one of the most widely available and overused items in the world today.
- **Rapid urbanization and population growth** increase the demand of cheap plastics.
- Since it is an **affordable and durable material**, it is utilized in every other way possible, from packaging materials to plastic bottles and containers, straws to plastic carry bags.
- Plastic takes **400 years and even more to Decompose**. The decomposition rate of plastic typically ranges from 500 to 600 years, depending on the type.
- **Abandoned Fishing Nets**
- Disposal of plastic is often **mismanaged**; it ends up in landfills.
- **Burning plastic is incredibly toxic** and can lead to harmful atmospheric conditions and deadly illnesses.

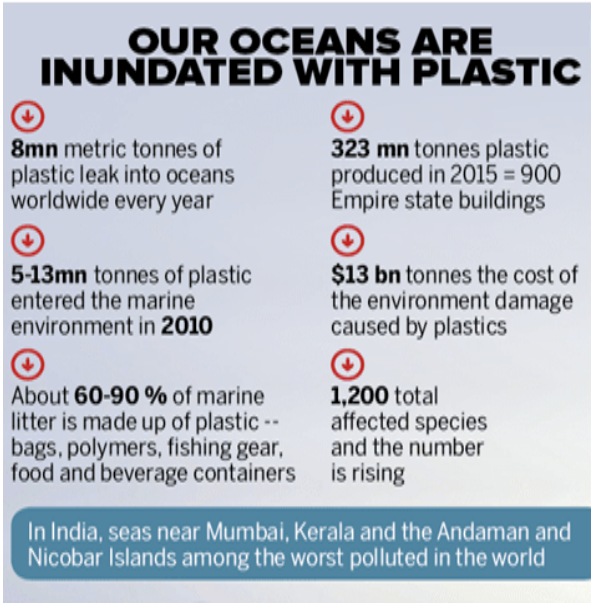
Serious Effects of Plastic Pollution

- **Negative Effects on Human Health:** Microplastics entering the human body via direct exposures through ingestion or inhalation can lead to an array of health impacts, including inflammation, genotoxicity, oxidative stress, apoptosis, and necrosis, which are linked to an array of negative health outcomes including cancer, cardiovascular diseases.
- **Plastic-contaminated seafood:** Scientists have found micro plastics in 114 marine species, and around one-third of these end up on our plates.
- **Upsets the Food Chain:** Because it comes in sizes large and small, polluting plastics even affect the world's tiniest organisms, such as plankton.

- **Groundwater Pollution:** Most of the litter and pollution affecting the world's oceans and groundwater comes from plastics.
- **Land Pollution:** When plastic is dumped in landfills, it interacts with water and forms hazardous chemicals. When these chemicals seep underground, they degrade the water quality. The wind carries and deposits plastic from one place to another, increasing the land litter.
- **Air Pollution:** Burning of plastic in the open air leads to environmental pollution due to the release of poisonous chemicals.
- **Economic impacts:** Plastic pollution costs **$13 billion in economic damage** to marine ecosystems per year. This includes losses to the **fishing industry and tourism, as well as the cost to clean up beaches.** Economic costs include those linked to **clean-up operations, litter removal, the repair and replacement of damaged vessels and gear, reduced fishing catches, and a decline in coastal tourism and impact on related industries.**
- **Marine life:** The most visible and disturbing impacts of marine plastics are the **ingestion, suffocation and entanglement** of hundreds of marine species. Marine wildlife such as seabirds, whales, fishes and turtles, **mistake plastic waste for prey, and most die of starvation as their stomachs are filled with plastic debris.**

Plastic Waste Management Rules, 2016

- It aims to **increase minimum thickness of plastic carry bags from 40 to 50 microns**.
- Expand the jurisdiction of applicability from the municipal area **to rural areas**, because plastic has reached rural areas also.
- **Extended Producer Responsibility**:To bring in the responsibilities of producers and generators, both in plastic waste management system and to introduce collect back system of plastic waste by the producers/brand owners, as per extended producers responsibility
- **Introduced collection of plastic waste management fee** through pre-registration of the producers, importers of plastic carry bags/multilayered packaging and vendors selling the same for establishing the waste management system
- Promote **use of plastic waste for road construction** as per Indian Road Congress guidelines or energy recovery, or waste to oil etc. for gainful utilization of waste and also address the waste disposal issue.


OUR OCEANS ARE INUNDATED WITH PLASTIC
8mn metric tonnes of plastic leak into oceans worldwide every year
323 mn tonnes plastic produced in 2015 = 900 Empire state buildings
5-13mn tonnes of plastic entered the marine environment in 2010
$13 bn tonnes the cost of the environment damage caused by plastics
About 60-90 % of marine litter is made up of plastic -- bags, polymers, fishing gear, food and beverage containers
1,200 total affected species and the number is rising
In India, seas near Mumbai, Kerala and the Andaman and Nicobar Islands among the worst polluted in the world

What are microplastics?

- Microplastics are **plastic debris smaller than 5mm in length**, or about the size of a sesame seed.
- They come from a variety of sources, one of them is when larger pieces of plastic degrade into smaller pieces, which are difficult to detect.

Why is microplastic pollution especially harmful?

- The **durability of plastic**, which implies that plastic can take hundreds to thousands of years to decompose depending on the type of plastic and where it has been dumped.
- In the oceans, plastic pollution **impacts marine life, ocean health, coastal tourism and even human health.**
- Over the past few years, various news reports have shown that **marine animals such as whales, seabirds and turtles unknowingly ingest plastic and often suffocate.**

- For humans, too, marine plastic pollution is harmful if it **reaches the food chain**. For instance, microplastics have been found in **tap water, beer and even salt**.
- One of the first studies to estimate plastic pollution in human ingestion that was published in June 2019 said that an average person eats at least **50,000 particles of microplastic each year**. Consumption of plastic by humans is harmful since several chemicals that are used to produce plastics can be **carcinogenic.**

Measures taken by government

- India has pledged to **ban all single-use plastics by 2022.**
- All offices of central and state governments and major PSUs have been told to prohibit single-use plastic products.
- India has **banned imports of solid plastic waste.**
- India has passed the Plastic Waste Management Rules, 2016 and introduced the **Extended Producer Responsibility.**

Way Forward

The 3R's +E Strategy

- **Reduce:** To efficiently reduce plastic pollution, there is an evident need of reducing our usage of plastic.
- **Reuse:** Many plastic items can be reused or used for different purposes. Before throwing plastic items, it is important to consider how they can be reused.
- **Recycle:** Plastic recycling consists of collecting plastic waste and reprocessing it into new products, to reduce the amount of plastic in the waste stream.
- **Educate:** Another crucial solution is education in order to increase awareness and behavioral change.

Legal wayout

- **Law can be framed** and used to tackle plastic pollution and support a circular plastics economy.
- **Policy shifts** can reduce plastic pollution by incentivizing changes in both business and consumer behavior, as well as in plastic design, alternatives and recycling.
- Governments can also **impose taxes** to deter the production or use of single-use plastics, or **offer tax breaks, subsidies and other fiscal incentives to encourage alternatives to single-use plastic products**.
- **Product standards, certifications and labeling requirements can be designed to educate the public on the environmental impacts of plastic**, and on the health and safety hazards involved in their production and use.
- **Extended Producer Responsibility (EPR) programs** can ensure that manufacturers maintain responsibility for single-use plastic products throughout the whole life cycles of those products.

Conclusion

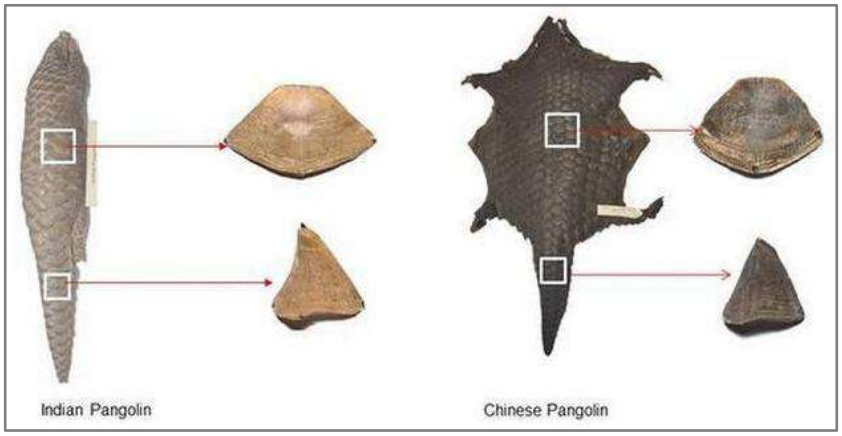
- There is no silver bullet to solving the world's plastic problem. It will require governments at both the national and sub-national levels to tackle the regulation of single-use plastic products, determining what policy approaches they want to use and what type of legislation will support their objectives.

PANGOLINS

Context

Researchers sequenced 624 pangolin scales, categorising the species

Need



- Pangolins, despite being listed in **Schedule I of Wildlife (Protection) Act, 1972 continue to be the world's most trafficked mammal.**
- The **primary demand for its scales in the making of traditional East Asian medicines** has led to an estimated illegal trade worth $2.5 billion every year.
- To enforce the appropriate national and international laws and to track the decline of the species, researchers of Zoological Survey of India (ZSI), Kolkata, have now developed tools to tell apart the scales of Indian pangolin (Manis crassicaudata) and Chinese pangolin (Manis pentadactyla).
- **Rampant poaching is pushing the endangered species towards extinction.** Between 2000 and 2019, an estimate of about 8,95,000 pangolins was trafficked globally, which mainly involved Asian and African pangolins.

Pangolins in India

- Indian Pangolin (Manis crassicaudata) and the Chinese Pangolin (Manis pentadactyla) are found in India.
- Indian Pangolin is a large anteater covered by 11-13 rows of scales on the back.
- A terminal scale is also present on the lower side of the tail of the Indian Pangolin, which is absent in the Chinese Pangolin.

Habitat

Indian Pangolin

- Widely distributed in India, except the arid region, high Himalayas and the North-East. The species is also found in Bangladesh, Pakistan, Nepal and Sri Lanka.

Chinese Pangolin

- Found in the Himalayan foothills in Eastern Nepal, Bhutan, Northern India, North-East Bangladesh and through Southern China.

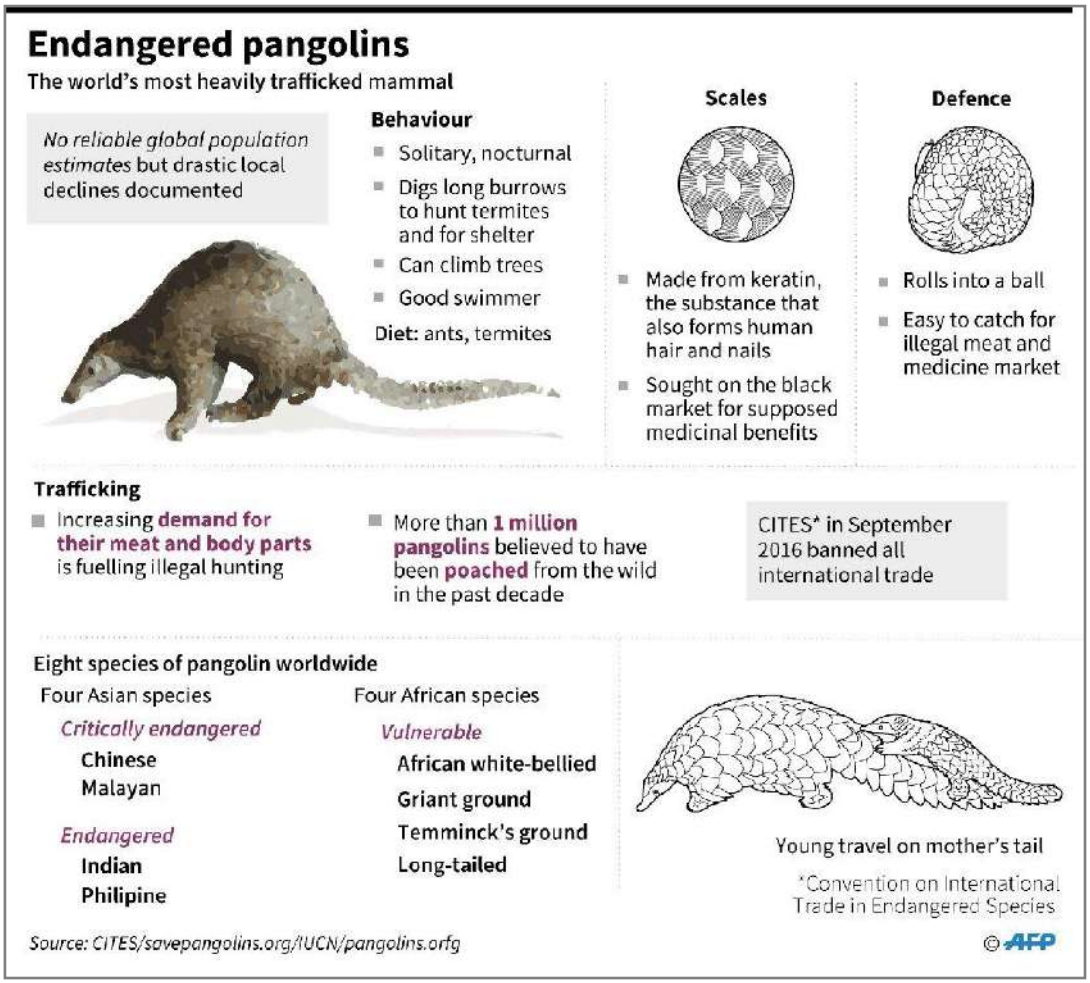
Threats to Pangolins in India

- Hunting and poaching for use as a **protein source and traditional medicine** and international trade for its meat and scales in East and South East Asian countries, particularly China and Vietnam.

Protection Status

IUCN Red List

- Indian Pangolin: Endangered
- Chinese Pangolin: Critically Endangered
- Both these species are listed under Schedule I, Part I of the Wildlife (Protection) Act, 1972.


Endangered pangolins
The world's most heavily trafficked mammal
No reliable global population estimates but drastic local declines documented
Behaviour
Solitary, nocturnal
Digs long burrows to hunt termites and for shelter
Can climb trees
Good swimmer
Diet: ants, termites
Scales
Made from keratin, the substance that also forms human hair and nails
Sought on the black market for supposed medicinal benefits
Defence
Rolls into a ball
Easy to catch for illegal meat and medicine market
Trafficking
Increasing demand for their meat and body parts is fuelling illegal hunting
More than 1 million pangolins believed to have been poached from the wild in the past decade
CITES* in September 2016 banned all international trade
Eight species of pangolin worldwide
Four Asian species
Critically endangered
Chinese
Malayan
Endangered
Indian
Philipine
Four African species
Vulnerable
African white-bellied
Griant ground
Temminck's ground
Long-tailed
Young travel on mother's tail
*Convention on International Trade in Endangered Species
Source: CITES/savepangolins.org/IUCN/pangolins.orfg
©AFP

ASIAN ELEPHANTS

GS-III ENVIRONMENT & ECOLOGY

Context

- Lightning kills herd of 18 **elephants** in Assam. The incident happened in Kandali Proposed **Reserve Forest.**

Asian Elephant

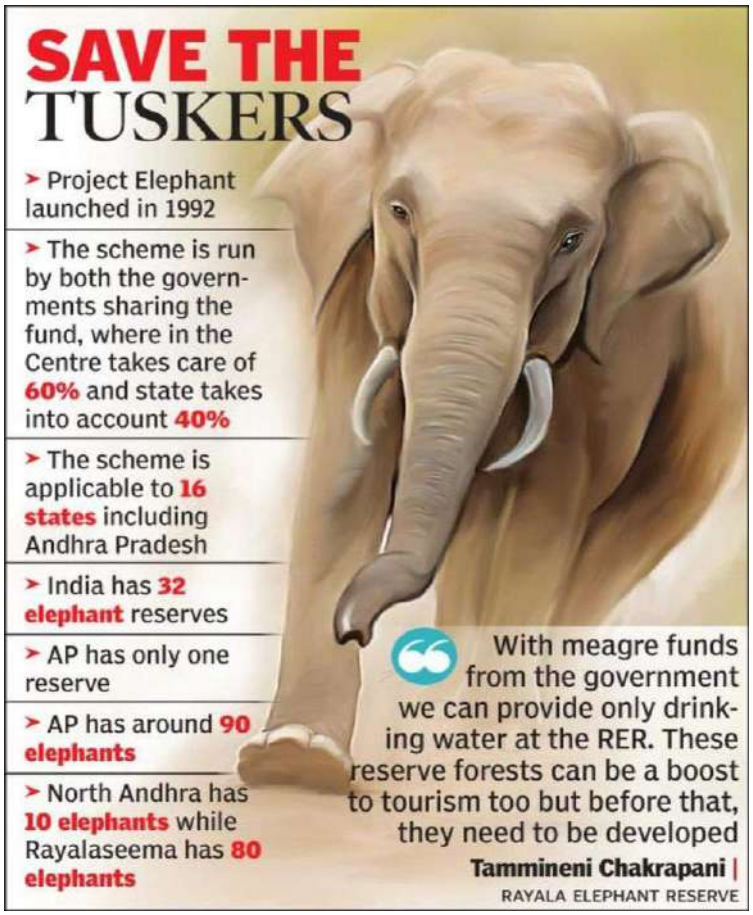
- It is distributed througout the Indian subcontinent and Southeast Asia, from India in the west, Nepal in the north, Sumatra in the south, and to Borneo in the east.
- The Asian elephant is the **largest living land animal in Asia**.
- Since 1986, the Asian elephant has been listed as **Endangered** on the IUCN Red List, as the population has declined by at least 50 percent over the last three elephant generations, which is about 60–75 years.
- It is primarily threatened by **loss of habitat, habitat degradation, fragmentation and poaching**.
- The Asian elephant is listed on **CITES Appendix I**.
    - CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora, also known as the Washington Convention) is a multilateral treaty to protect endangered plants and animals.

Project Elephant

- It is a **centrally sponsored scheme** launched in February 1992.
- **Aim:** To provide financial and technical support to major elephant bearing States in the country for protection of elephants, their habitats and corridors.
- It also seeks to address the issues of **human-elephant conflict and welfare of domesticated elephants.**

- The Project is being implemented in **16 States / UTs**, viz. Andhra Pradesh , Arunachal Pradesh, Assam, Jharkhand, Karnataka , Kerala , Meghalaya , Nagaland , Orissa , Tamil Nadu , Uttaranchal , Uttar Pradesh and West Bengal.
- The project seeks to ensure the **long-term survival to the populations of elephants in their natural habitats by protecting the elephants, their habitats and migration corridors.**
- **Other goals**: supporting the research of the ecology and management of elephants, creating awareness of conservation among local people, providing improved veterinary care for captive elephants.
- Project Elephant has been **formally implementing MIKE** (Monitoring of Illegal Killing of Elephants) programme of CITES in 10 ERs (Elephant Reserve) since January 2004. It is mandated by COP resolution of CITES.

What is a reserve forest?


SAVE THE TUSKERS
Project Elephant launched in 1992
The scheme is run by both the governments sharing the fund, where in the Centre takes care of 60% and state takes into account 40%
The scheme is applicable to 16 states including Andhra Pradesh
India has 32 elephant reserves
AP has only one reserve
AP has around 90 elephants
North Andhra has 10 elephants while Rayalaseema has 80 elephants
With meagre funds from the government we can provide only drinking water at the RER. These reserve forests can be a boost to tourism too but before that, they need to be developed
Tammineni Chakrapani | RAYALA ELEPHANT RESERVE

- Forest reserves are portions of state lands where **commercial harvesting of wood products is excluded to capture elements of biodiversity** that can be missing from sustainably harvested sites.
- A reserved forest is the forests accorded a certain degree of protection.
- The term was first introduced in the **Indian Forest Act, 1927 in British Raj**, to refer to certain forests granted protection under the British crown in British India.
- **Land rights** to forests declared to be Reserved forests are typically **acquired and owned** by the **Government of India.**
- Unlike national parks of India or wildlife sanctuaries of India, **reserved forests are declared by the respective state governments.**
- In Reserved forests, rights to **all activities** like hunting, grazing, etc. are **banned** unless specific orders are issued otherwise.
- The first Reserve Forest Of India was **Satpura National Park**.
- Protected forests are of two kinds - **demarcated protected forests and undemarcated protected forests**, based on whether the limits of the forest have been specified by a formal notification.

What is the process of earmarking the land as a forest?

- Under Section 4 of The Indian Forest Act, 1927, the state government can "constitute any land a reserved forest" by issuing a notification in the Official Gazette, "declaring that it has been decided to constitute such land a reserved forest", and "specifying, as nearly as possible, the situation and limits of such land"
- The government **must also appoint a Forest Settlement Officer** (FSO) "to inquire into and determine the existence, nature and extent of any rights alleged to exist in favour of any person in or over any land comprised within such limits or in or over any forest-produce, and to deal with the same".
- The FSO will seek suggestions and objections from residents and others within 45 days of initiating the process.
- After taking into account the suggestions and objections, the process of turning the land into a reserved forest will be completed.
- Thereafter, the area will be protected from any construction.

Why vultures are important to protect nature?

- Human race has encountered many viruses like COVID-19, our rich biodiversity plays a huge role in keeping the germs at check.
- Of the many organisms, **vultures, as carcass feeders**, play a significant role. The scavenger birds **hold the key for a natural mechanism of infection control.**
- **V**ultures are the scavengers who do the **work of cleaning up, and keeping the ecosystem healthy.**
- The beauty is, **despite feeding on infected carcass, vultures do not get infected.**
- The acids in their stomach are potent enough to kill the pathogen. Thus, the **chain of infection is broken.**
- It invisibly controls the spread of harmful pathogens causing deadly anthrax, cholera, foot and mouth disease, rabies and distemper.
- The birds also **prevent the contamination of water sources**, especially in the wild.
  - When animals die near watering hole, there is an imminent danger of contamination resulting in a quick spread of infections and mass death.
  - But vultures devour the carcasses in totality thereby preventing a tragic mishap.
- In the last four years, the population has grown by may be 10 percent. Restoring the population is an uphill task as **vultures are slow breeders**.
- If they become extinct, there will be a huge ripple effect. Other scavengers like rats and dogs may take over, temporarily, but with that comes problems like increased incidence of rabies.

Declining population
India has nine species of vultures, six of which are found in Assam
Vultures of the genus 'Gyps'
Oriental white-backed (Assam, critically endangered)
Long-billed (critically endangered)
Slender-billed (Assam, critically endangered)
Himalayan griffon (Assam, winter visitor from Himalayas)
Eurasian griffon (Assam, winter visitor from Himalayas)
Single representative species
Egyptian
Bearded
Cinereous (Assam)
King (Assam, critically endangered)

BIRD'S EYE VIEW

9 RECORDED SPECIES:
Oriental white-backed, long-billed, slender-billed, Himalayan, red-headed, Egyptian, bearded, cinereous and the Eurasian Griffon.

(4 CRITICALLY ENDANGERED, 1 ENDANGERED, 3 NEAR THREATENED)

THE CRISIS:
A massive dip in vulture populations came into limelight in the mid-90s, and in 2004 the cause of the crash was established as diclofenac, a veterinary nonsteroidal anti-inflammatory drug.

WHAT NEXT AFTER 2006 PROJECT:

- Testing of nonsteroidal anti-inflammatory drugs on vultures, development of new NSAIDs
- Covering two more species in the breeding programme that earlier focussed on 3 critically endangered species
- Additional conservation breeding centres and four rescue centres planned across India
- Nationwide vulture survey once in four years

Vulture Action Plan 2020-25 for the conservation of vultures in the country

Why it was needed?

- Between the 1990s and 2007, numbers of three presently **critically-endangered species** – the Oriental white-backed, long-billed and slender-billed vultures — **crashed massively with 99 per cent of the species having been wiped out.**
- The number of **red-headed vultures**, also critically-endangered now, declined by 91% while the Egyptian vultures by 80%.
- The **Egyptian vulture** is listed as '**endangered**' while the **Himalayan, bearded and cinereous vultures are 'near threatened'.**
- The crash in vulture populations was caused by the **diclofenac** — a **veterinary nonsteroidal anti-inflammatory drug (NSAID)** used to treat pain and inflammatory diseases such as gout — in carcasses that vultures would feed off.

Conservation efforts

- The MoEFCC released the **Action Plan for Vulture Conservation 2006** with banning the veterinary use of diclofenac in the same year and the decline of the vulture population being arrested by 2011.
- Government is planning to extend the project to 2025 to halt the decline in vulture numbers in India.

Vulture Safe Zone programme

- It is being implemented at eight different places in the country where there were extant populations of vultures, including two in Uttar Pradesh.
- An area is declared a Vulture Safe Zone only when no toxic drugs are found in undercover pharmacy and cattle carcass surveys, for **two consecutive years,** and the vulture populations are stable and not declining.

Vulture Conservation Breeding Programme

SURVEY SOON
As a first step towards implementing a coordinated vulture conservation action plan, a survey will be conducted in four south Indian states, tentatively from March 15 to 17
This is expected to help understand population dynamics of vultures in the habitats across south India, including Wayanad- Mudumalai-Bandipur landscape
A series of initiatives like genetic studies on population estimation and radio tagging of vultures will be implemented
Red-headed vulture, a critically endangered bird species, at the Wayanad Wildlife Sanctuary

- The **Central Zoo Authority (CZA) and Bombay Natural History Society (BNHS)** established the Vulture Conservation Breeding Programme, which has been successful and had three critically-endangered species bred in captivity for the first time.
- Eight centres have been established and, so far, 396 vultures of the three species have successfully fledged.
- The ministry has now launched conservation plans for the red-headed and Egyptian vultures, with breeding programmes for both.
- The action plan aims to ensure that sale of veterinary NSAIDs is regulated and livestock are treated only by qualified veterinarians.
- Additional **Conservation Breeding Centres** are also being planned across the country, along with **Vulture Conservation Centres** with samples and information collected from the wild analysed and stored at these centres – one each in Uttar Pradesh, Tripura, Maharashtra, Karnataka and Tamil Nadu.
- Four **rescue centres** have been proposed for different geographical areas like Pinjore in the north, Bhopal in central India, Guwahati in Northeast and Hyderabad in South India.

KYASANUR FOREST DISEASE

GS-III ENVIRONMENT & ECOLOGY

Context

- ICMR-NIV develops new point-of-care testing for Kyasanur forest disease.

About Point-of-care test

- The point-of-care test would **be useful in quick patient management and controlling further spread of the virus.**
- It has been found to be highly sensitive in the rapid diagnosis of Kyasanur forest disease (KFD), also known as **monkey fever**, which is an **emerging public health problem** in the country.
- This point-of-care **tests would be beneficial for the diagnosis of KFD** as the outbreaks mainly happen in **remote areas, where there is lack of well-equipped sample handling and laboratory testing facilities.**
- It includes a **battery-operated PCR analyser**, which is a portable, lightweight and universal cartridge-based sample pre-treatment kit and nucleic acid extraction device that aid in sample processing at the point of care.

About Kyasanur Forest disease

- This disease was **first identified in Kyasanur forest of Shimoga district in Karnataka** during an investigation of monkey mortalities in 1957.
- **It** is a **zoonotic disease.**
- The disease is caused by a **Kyasanur Forest disease virus**, which primarily **affects humans and monkeys.**
- In nature, the **virus is maintained mainly in hard ticks, monkeys, rodents and birds** and **transmitted via the bite of Haemaphysalis tick**s and **contact with carcasses of dead monkeys.**
- The disease is characterised by chills, frontal headache, body ache, and high fever for five to 12 days with a case fatality rate of 3 to 5 per cent.

Incidence in India

- Since its identification in 1957 and up to 2012, sporadic cases and several outbreaks of KFD have been reported every year, especially in five districts of Karnataka with average cases of about 400 to 500 per year.
- After 2012, the presence of **KFD has also been reported from adjoining states** — Tamil Nadu, Kerala and Maharashtra.
- Eventually, KFD emerged as a **grave public health problem spreading through the entire Western Ghats.**

Threat to humans

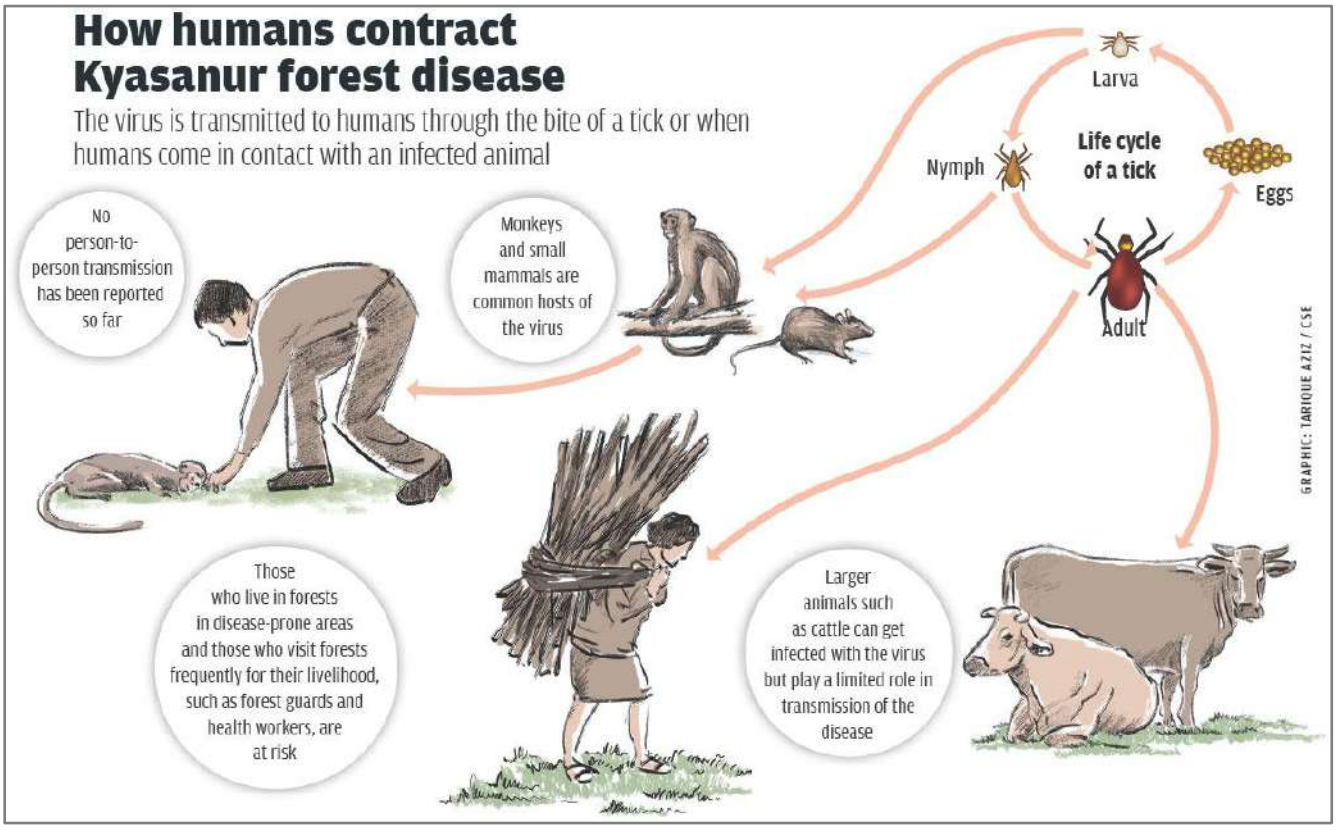
- Humans **can get the disease form an infected tick** bite or by contact with an infected animal, such as sick or recently dead monkey.
- Available epidemiological data **does not suggest any human-to-human transmission.**
- However, human cases have been reported in the past while working on this virus in the laboratory.

Treatment

- **No specific treatment for KFD is available;** however, prompt symptomatic and supportive therapy including maintenance of hydration, hemodynamic stability and management of neurological symptoms decreases morbidity and mortality.

Vaccination

- There is limited availability of information on KFD vaccine for human use in India.
- State Government of **Karnataka is following KFD vaccination policy in the KFD endemic area**.


How humans contract Kyasanur forest disease
The virus is transmitted to humans through the bite of a tick or when humans come in contact with an infected animal
Larva
Nymph
Life cycle of a tick
Eggs
Adult
No person-to-person transmission has been reported so far
Monkeys and small mammals are common hosts of the virus
Those who live in forests in disease-prone areas and those who visit forests frequently for their livelihood, such as forest guards and health workers, are at risk
Larger animals such as cattle can get infected with the virus but play a limited role in transmission of the disease
GRAPHIC: TARIQUE AZIZ / CSE

MOORHEN YOGA MAT

GS-III ENVIRONMENT & ECOLOGY

Context

- A biodegradable and compostable yoga mat developed from water hyacinth by six young girls from the fishing community in Assam could turn this water plant from a nuisance to wealth.

More about news

- The girls belong to the fishing community living in the fringe of the **Deepor Beel**.
- The innovation by the girls, whose families are directly dependent on the wetland for survival, could contribute significantly towards the environmental conservation and sustainability of Deepor Beel and also ensure local livelihood.
- The mat called '**Moorhen Yoga Mat'** will soon be introduced to the world market as a unique product.
- The intervention was triggered through an initiative by **North East Centre for Technology Application and Reach (NECTAR),** an autonomous body under Department of Science & Technology (DST), Govt. of India to involve the entire women community associated with a collective called 'Simang' meaning dream, led by the 6 girls to create wealth from water hyacinth plants.

About Deepor Beel

- It is a **permanent freshwater lake** in south west of Guwahati city.
- It is recognised as a **Ramsar Site** (a wetland of international importance) and a **bird wildlife sanctuary**.

About Moorhen Yoga Mat

- It is a **hand-woven 100% biodegradable and 100 % compostable mat** to be used for doing Yoga was ideated as a means to provide multiple ecological and social benefits.
- The mat developed through **fiber processing and technological interventions** that could improve the aquatic ecosystem of the wetland through removal of water hyacinth.
- It will help in **sustainable production of utility products with community engagement and generate of livelihood for indigenous communities** to become completely 'Atamanirbhar'.
- The 'Moorhen Yoga mat' named after **Kam Sorai (Purple moorhen, a resident bird of Deepor Beel Wildlife sanctuary)**.
- The bag has adjustable strap and closures effectively designed to be in sync with biodegradability.

About water hyacinth plant

- It is an aquatic plant native to the Amazon basin, and is often a **highly problematic invasive species outside its native range.**
- The plant is extremely tolerant of, and has a **high capacity for the uptake of heavy metals**, including cadmium, chromium, cobalt, nickel, lead and mercury, which could make it **suitable for the biocleaning of industrial wastewater.**
- Plant has abundant nitrogen content, it can be used as a **substrate for biogas production and the sludge obtained from the biogas.**
- When not controlled, water hyacinth will cover lakes and ponds entirely; this dramatically affects water flow and blocks sunlight from **reaching native aquatic plants which often die.**

ASIATIC LIONS

GS-III ENVIRONMENT & ECOLOGY

Context

- Eight Asiatic lions at Hyderabad's Nehru Zoological Park have tested positive for the deadly coronavirus, perhaps the **first known case of the human infecting the felines and making them sick in India.**

More about news

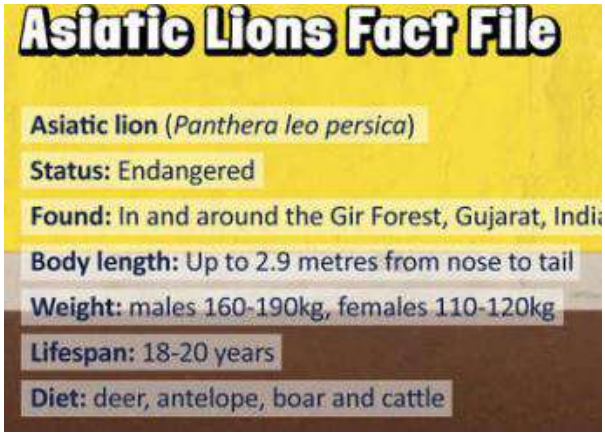
- Centre for Cellular and Molecular Biology- Laboratory for Conservation of Endangered Species (CCMB-LaCONES) informed the forest authorities that the RT-PCR tests of these big cats were positive.
- The CCMB carried out detailed investigation of the samples for genome sequencing to find out if the strain came from human beings or not.

- Based on experience with zoo animals elsewhere in the world that have experienced SARS-COV2 positive last year, there is no factual evidence that animals can transmit the disease to humans any further.

Nehru Zoological Park

- It is located in Hyderabad.
- It is one of the biggest zoos in Asia.

About Asiatic lions


Asiatic Lions Fact File
Asiatic lion (Panthera leo persica)
Status: Endangered
Found: In and around the Gir Forest, Gujarat, Indi
Body length: Up to 2.9 metres from nose to tail
Weight: males 160-190kg, females 110-120kg
Lifespan: 18-20 years
Diet: deer, antelope, boar and cattle

- Habitat: They are confined to Gir National Park and its surrounding environs in Gujarat's Saurashtra.
  - Five protected areas currently exist to protect the Asiatic lion: **Gir Sanctuary, Gir National Park, Pania Sanctuary, Mitiyala Sanctuary, and Girnar Sanctuary.**
  - In the surrounding sanctuary **only Maldharis** have the right to take their livestock for grazing.
- **Population:** As per the 14th Asiatic Lion Census 2005, the lion population was estimated at 523 individuals. In August 2017, surveyors counted 650 wild lions. The 15th Asiatic Lion Census could not be conducted in 2020, as scheduled, because of the COVID-19 pandemic. In June 2020, an estimation exercise counted 674 Asiatic lions in the Gir forest region, an increase of 29 per cent over the 2015 census figure.
- **Threats:** The Asiatic lion currently exists as a single subpopulation, and is thus vulnerable to extinction from unpredictable events, such as an **epidemic or large forest fire.** There are indications of **poaching incidents** in recent years. There have also been a number of **drowning incidents after lions fell into wells**.
  - Nearly 85 lions in the vicinity of Gir Forest were found dead in October 2018, they had died because of **canine distemper virus**, the same virus that had killed several Serengeti lions earlier.
  - The Asiatic lion is confined only to the Gir protected area and its surrounding environs and thus faces the additional **threat of genetic homogeneity**, which makes the species susceptible to diseases. "It is thus in the interest of long term Asiatic lion conservation that the species be reintroduced to other places in and outside Gujarat

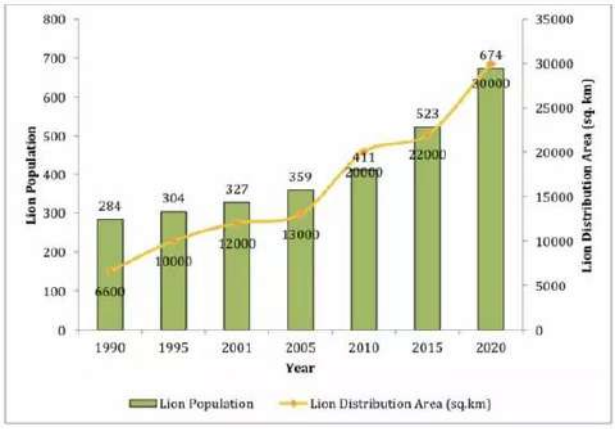


Figure 3: Population and distribution trend of Asiatic Lions.

- **Expert suggestions**: Experts have called for the reintroduced of the species outside Gujarat for the long term conversation of the Asiatics lions. **Kuno Palpur Sanctuary in MP** is being considered by the ministry for reintroduction of lions.
- **Conservation status:** It is categorised as **endangered** on the International Union for the Conservation of Nature Red List.

BIOFLOC METHOD FOR VANNAMEI FARMING

GS-III ENVIRONMENT & ECOLOGY

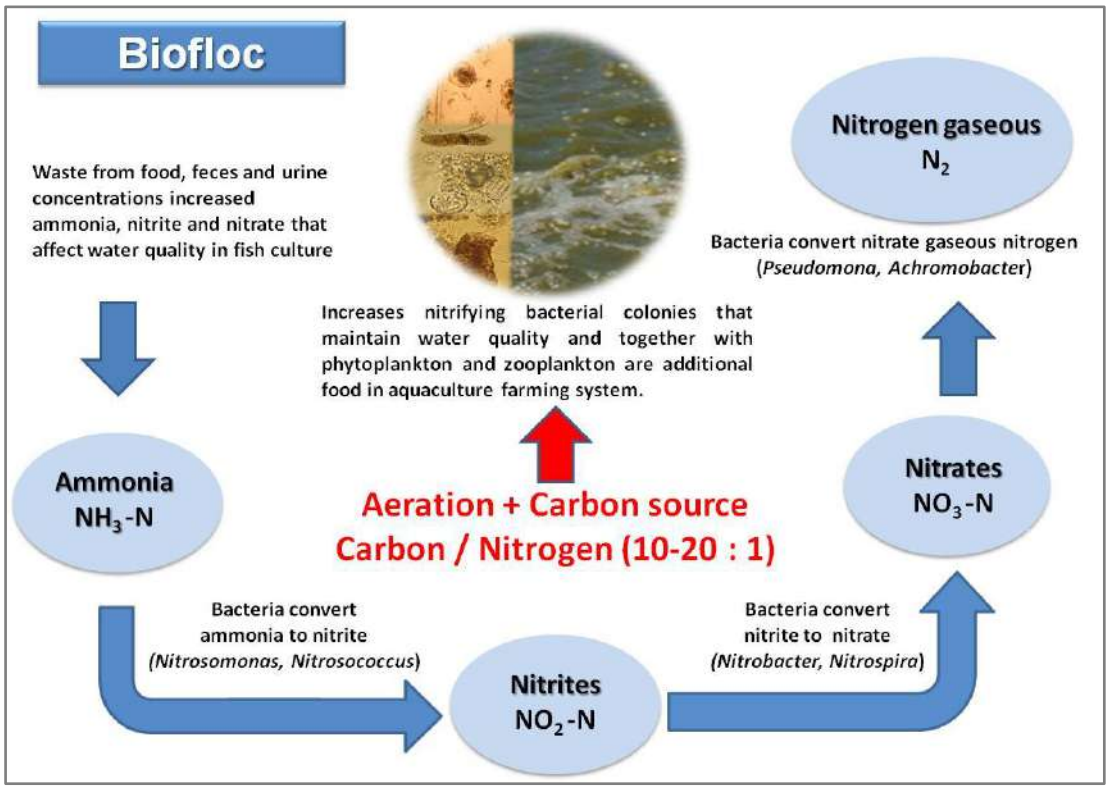
Context

- The Kerala University of Fisheries and Ocean Studies (Kufos) is looking to deploy the biofloc method to farm Vannamei shrimp even as COVID-19 restrictions and job losses are turning more and more people to self-employment in agriculture and allied activities.

More about news

- It has found acceptance among aquaculturists with the Department of Fisheries offering support for the programme.
- The fish that is now being widely cultivated using the technology is the **genetically-modified farmed tilapia (GIFT).**
- Such ventures can be turned into economically-remunerative ones for farmers by switching the candidate species to Vannamei shrimp.

Biofloc technology


Biofloc
Waste from food, feces and urine concentrations increased ammonia, nitrite and nitrate that affect water quality in fish culture
Nitrogen gaseous N_2
Bacteria convert nitrate gaseous nitrogen (Pseudomona, Achromobacter)
Increases nitrifying bacterial colonies that maintain water quality and together with phytoplankton and zooplankton are additional food in aquaculture farming system.
Ammonia NH_3-N
Aeration + Carbon source
Carbon / Nitrogen (10-20 : 1)
Nitrates NO_3-N
Bacteria convert ammonia to nitrite (Nitrosomonas, Nitrosococcus)
Nitrites NO_2-N
Bacteria convert nitrite to nitrate (Nitrobacter, Nitrospira)

- It is an **intensive aquaculture system** and is considered to hold an advantage over conventional systems, as the normally **harmful waste produced in conventional aquaculture can be turned into feed for fish.**
- Those with **limited land area** could take up fish culture using the technology.
- The exotic whiteleg shrimps are native to the Eastern Pacific Ocean and have been found to be suited to the brackish water conditions in Kerala.
- Extensive culture of Vannamei has been undertaken in **Andhra Pradesh, West Bengal, Orissa, and Tamil Nadu, among other coastal States.**
- Biofloc system was developed **to improve the environmental control over the aquatic animal production.**
- In aquaculture, the strong influential factors are the **feed cost (accounting to 60% of the total production cost) and most limiting factor is the water/land availability**.
- Biofloc system is a **wastewater treatment which has gained vital importance as an approach in aquaculture.**
- The **principle of this technique is the generation of nitrogen cycle by maintaining higher C: N ratio** through stimulating heterotrophic microbial growth, which assimilates the nitrogenous waste that can be exploited by the cultured spices as a feed.
- The biofloc technology is not only effective in treating the waste but also grants nutrition to the aquatic animal.
- The higher C : N is maintained through the addition of carbohydrate source (molasses) and the water quality is improved through the production of high quality single cell microbial protein.
- In such condition, dense microorganisms develop and function both as bioreactor controlling water quality and protein food source.
- The biofloc technology has been implemented in shrimp farming due to its bottom dwelling habit and resistance to environmental changes.

INTEGRATING ETHICAL INVESTMENT & CORPORATE GOVERNANCE

GS-IV ETHICS

Introduction

- Demand for funds which cherry pick investments with **strong environmental, social or governance (ESG) credentials** have surged in recent years.
- Many of these funds include terms such as **'ethical' or 'impact'** in their names.
- In this article we will understand **how important is "ethical" and "impact" investment for a socially responsible corporate governance.**

Corporate Governance

- Corporate governance is the combination of rules, processes or laws by which businesses are operated, regulated or controlled.

Ethical Corporate Governance

- It refers to the processes and policies of a company that is concerned with holding the balance between economic and social goals and between individual and communal goals.
- Mandatory **"Corporate Social Responsibility"** that encourages companies to spend 2% of their average net profit in the previous three years on societal goals is a part of ethical corporate governance.

Ethical Investment and its types

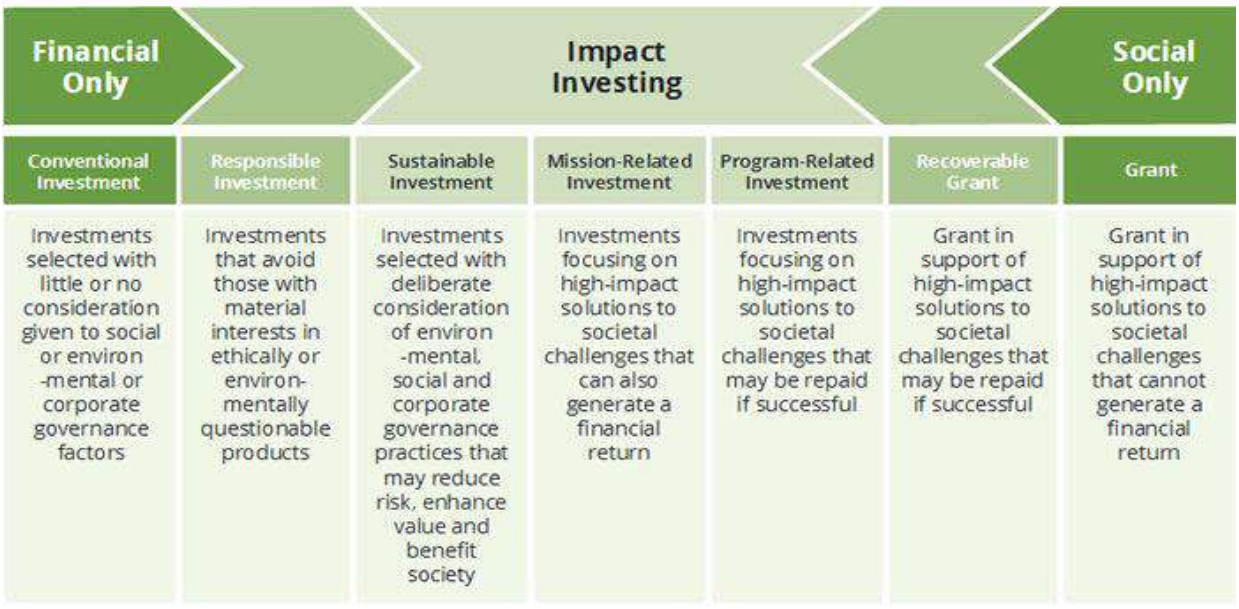
- Ethical investing is the practice of selecting investments **based on ethical or moral principles.**
- It takes into account **social, moral, religious, political, or environmental values** prior to making the investment decisions.

Socially Responsible Investing Funds (SRI Funds)

- SRI funds avoid investments into **sin stocks such as gambling, alcohol, smoking, pornography, tobacco or firearms, Terrorism affiliations.**

Impact investment: Going a step further

- These are investments that are made with the intention to generate **positive, measurable social and environmental impact alongside a financial return.**
- Impact investors actively seek to place capital in businesses such as **renewable energy, housing, healthcare, and education, micro-finance, and sustainable agriculture.**


Financial Only
Impact Investing
Social Only
Conventional Investment
Responsible Investment
Sustainable Investment
Mission-Related Investment
Program-Related Investment
Recoverable Grant
Grant
Investments selected with little or no consideration given to social or environ -mental or corporate governance factors
Investments that avoid those with material interests in ethically or environ-mentally questionable products
Investments selected with deliberate consideration of environ -mental, social and corporate governance practices that may reduce risk, enhance value and benefit society
Investments focusing on high-impact solutions to societal challenges that can also generate a financial return
Investments focusing on high-impact solutions to societal challenges that may be repaid if successful
Grant in support of high-impact solutions to societal challenges that may be repaid if successful
Grant in support of high-impact solutions to societal challenges that cannot generate a financial return

ESG

- ESG (Environmental, Social, and Corporate Governance) investors tend to be **more activist investors,** participating at shareholder meetings and actively working to influence company policies and practices.
- Thus, ESG and Impact investors are far more proactive in their intention for positive impact as opposed to merely avoiding the negative impacts on the planet.

ESG
ENVIRONMENTAL
Climate change strategy, Biodiversity, Water efficiency, Energy efficiency, Carbon intensity, Enviromental management system
SOCIAL
Equal opportunities, Freedom of association, Health and safety, Human rights, Customer & products resposibility, Child labour
GOVERNANCE
Business ethics, Compliance, Board independence, Executive compensation, Shareholder democracy

Criticism of Ethical Investment

- Socially responsible investment makes both businesses and the financial markets operate less efficiently.
- One of the harshest critics of ESG was the late **Milton Friedman**, the leading light of neoclassical economic theory.
- Friedman argued that evaluating a stock/project should focus on the company's financial value and bottom-line profits.
- Socially responsible corporate expenditures are **"non-essential expenses" that erode corporate and shareholder profits.**
- **Another criticism:** The fees for ethical investing can be higher due to the research involved in identifying the right investment.

Let's find out whether the criticisms are pragmatic in the 21st century..

Business Impact

- **According to "The New Climate Economy" Report by Global Commission on the Economy and Climate**
  - ✓ 95% of plastic packaging — the equivalent of $120 billion annually — is wasted after the first use.
  - ✓ Microplastics have been found in almost every aquatic species.
  - ✓ Over 140 million people will be displaced from their homes by 2050 if business continues as usual.
  - ✓ Industries must drop carbon emissions by 40% by 2060 to stop the planet from warming over two degrees Celsius.
  - ✓ In combination with action from governments and other stakeholders, businesses that take action on climate change by adopting green policies, technologies, and strategies for growth could realize a total of $26 trillion in economic benefits.
- **IPCC:** The global temperature has already increased by 1C above pre-industrial levels. Global warming is likely to reach 1.5°C between 2030 and 2052, if warming continues at the current rate. This will jeopardize billions of lives.
- CO2 levels will reach 550ppm by 2050.
- **Harvard Research:** A high or "business as usual" scenario, CO2 levels will reach 550ppm by 2050.
- **Ecological Threat Register, Institute for Economics and Peace (IEP)** -1.2 billion people around the world would be displaced by 2050.
- **Extinction Rebellion Movement:** With Business-as-usual only about 10 percent of the planet's population would survive at 4 degree C rise in temperature. 6 billion lives would be wiped out by 2100.

Conclusion

- We as human beings including our businesses depend on biodiversity to keep us alive and healthy.
- The air we breathe, the water we drink, the foods we eat and the medications we take are all by-products of a healthy planet.

- But our world, and the diversity of life it supports, is under threat.
- Deforestation, pollution, diseases, greenhouse gas emissions, destruction of wetlands, climate change and globalization are wiping out species and damaging ecosystems at unprecedented rates.
- **Larger picture:** Business needs to be part of the solution, not just the problem.
- The sustainability of businesses in the long run is based on the impact of its investment on the whole society.
- After all, it **is not possible to have a strong, functioning business in a world of increasing inequality, poverty and climate change.**
- We cannot be bystanders. We need to be a giver, not a taker, in a society that gives us life in the first place.
- So, the need of inculcating "Impact Investment" in Ethical Corporate Governance can not be emphasized enough.

As the UN Global Compact Report stated, - the single minded goal of profit in business at any cost is fracturing societies and destroying the environment. Thus, business is threatening the very elements that underpinned its own existence.

Way Ahead

- Corporate Governance can build a proper **Decision Framework** as a basis to support investments.
- **Making Thematic investment mandatory in Corporate Governance**: i.e Portfolios which contain only those investments that adhere positively to a particular sustainability theme such as: environmental technology, carbon intensity, community investing, affordable housing, human rights etc
- **Engagement:** collaboration with like minded investors on common issues.

Build a Decision Framework
I want to feel satisfied that my investments match my values
I want to have an impact on environmental and social issues
These do not have to be mutually exclusive
I want my portfolio to target higher expected returns
I want to reach my goals without taking more risk than necessary

- **Government Policy:** incentivizing and promoting ethical investment among industries and tightening of standards across the corporate board.
- **Shareholder activism:** Investors who are active owners need to raise resolutions in order to achieve socially & environmentally sustainable projects.
- The shift of approach in business strategy can **play a key role in turning the Earth into a "Healthy Planet"** as Gandhiji has rightly said;

"The world has enough for everyone's needs, but not enough for everyone's greed."

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SHORT NEWS ARTICLES

CULTURE & HISTORY

Karen Rebels

Context

- The Karen Rebels recently seized a military post in Myanmar.

About

- They are the oldest ethnic group in Myanmar.
- They have formed the Karen National Union (KNU).
- They have been fighting against the Myanmar government since 1949 for an independent state called "Kawthoolei".

Lag B'Omer Festival

Context

- 44 people were crushed to death in a stampede thousands of ultra-Orthodox Jews gathered in northern Israel to celebrate the Lag B'Omer festival.

About

- Lag B'Omer is an **annual Jewish festival** observed during the Hebrew month of Iyar.
- Lag B'Omer is the only day during the 49-day period when celebration is permitted.
- To mark the occasion, ultra-Orthodox Jewish pilgrims make their way to the base of Mount Meron every year, to pay their respects to **Rabbi Shimon Bar Yochai.**
- He a second century sage and mystic, who is believed to have died on this day. The Rabbi's tomb is a much revered holy site in Israel.

Pulayar Tribe and Anamalai Tiger Reserve

Context

- Residents of Anaimalai Tiger Reserve (ATR), started preparing for the annual festival of their local deity, Vairapattan.

About

- Tribal groups found in Kerala, Karnataka and Tamil Nadu.
- Known for **Kolamthullal, a mask dance.**
- **Another Dance:** Mudiattam or hair dance.
- Belong to "so called" Scheduled Caste

Anamalai Tiger Reserve

- Protected area located in the Tamil Nadu.
- **The sanctuary includes;**
  - ✓ Valparai: Water Falls
  - ✓ Ulandy Top Slip
  - ✓ Amaravathi
- It is adjacent to **Parambikulam Wildlife Sanctuary to the west.**
- Its core area of Manjampatti Valley is a drainage basin at the eastern end of the park.
- Manjampatti Valley is contiguous with Chinnar Wildlife Sanctuary to the south and the proposed Palani Hills Wildlife Sanctuary and National Park to the east.
- The National park enters Ernakulam district and Idukki district of Kerala.

ID-Art App

Context

- INTERPOL, launched a mobile application that can help in retrieving stolen works and artifacts.

About

- 'ID-Art' app will help identify stolen cultural properties, reduce illegal trafficking and increase the chances of retrieving stolen works or artifacts.
- The app gives the users, mobile access to the INTERPOL'S stolen works of art database holding authentic police data on stolen and missing art objects.
- ID-Art, allows users to search about the stolen object from the list of 52,000 items enlisted in INTERPOL'S data by uploading a picture. The data can be accessed manually also.

Al-Aqsa Mosque

Context

- Israeli police stormed the Al-Aqsa mosque compound in East Jerusalem, leaving a reported 300 people injured.

About

- Al-Aqsa Mosque is located in the Old City of Jerusalem, is the third holiest site in Islam.
- The mosque was built on top of the Temple Mount, known as **Haram esh-Sharif** in Islam, several decades after Muhammad's death.
- The mosque is located in close proximity to historical sites significant in Judaism and Christianity.
- As a result, the area is highly sensitive, and has been a flashpoint in the Israeli–Palestinian conflict.

HakkiPikki Tribe

Context

- People of the HakkiPikki Tribe survived Covid-19 in Karnataka.

About

- It is a semi-nomadic tribe based largely in Karnataka other than Telangana and Andhra Pradesh.
- **Clans:** Gujrathioa, Kaliwala, Mewara and Panwara.
- It is a Scheduled Tribe in Karnataka.

- **Languages:** Kannada, Tamil, Telugu and Malayalam along with Vagribooli which is similar to Guajarati.
- **Religion:** Hinduism.
- The HakkiPikki are a warrior tribal community who had to migrate to southern India after their defeat by Mughal kings.

Basava Jayanti

- Read about Lingayatism, Veerashaivism and Basavanna in detail in previous edition: https://www.iasgyan.in/ias-gazette-magazine/the-ias-gazette-may-2021

Sulawesi Cave Art

Context

- Scientists have warned that environmental degradation is killing one of the oldest and most precious pieces of the world's human heritage.

About

- The cave art of Sulawesi is much older than the prehistoric cave art of Europe.
- **Pleistocene-era rock paintings** dating back to **45,000-20,000 years ago** in cave sites, on the Indonesian island of Sulawesi.
- The artwork includes what is believed to be the **world's oldest hand stencil**.
- It was created by pressing the hand on a cave wall, and spraying wet red-mulberry pigments over it.

Findings

- The artwork made with pigments was decaying due to a **process known as haloclasty**.
- It is triggered by the growth of salt crystals due to repeated changes in temperature and humidity, caused by alternating wet and dry weather in the region.
- Indonesia has also experienced several natural disasters in recent years, which have quickened the process of deterioration.

International Museum Day

Context

- Recently, Culture Ministry organised a discussion on International Museum Day.

About

- The objective of International Museum Day is to raise awareness about the fact that museums are an important means of cultural exchange, enrichment of cultures and development of mutual understanding, cooperation and peace among people.
- The theme for this year's International Museum Day was **The Future of Museums: Recover and Reimagine.**

Buddha Sculpture

Context

- A miniature sculpture of the Buddha has been found in Udupi district of Karnataka.

Details

- The Buddha has been carved out very beautifully and is seated on a lotus pedestal in **Dharma Chakra Pravarthana Mudre.**
- Below the seat, six disciples are seated on either side of the Dharma Chakra.
- The Lord wears clothes and ear-rings.
- A **small Ushnisha** is shown on the top of the head.
  - ✓ The ushnisha is a three-dimensional oval at the top of the head of the Buddha.
- In the back of the head, a beautifully carved round lobe is seen.

- On the top corners, two Yakshas and, on either side of his back, two winged horses have been carved out
- The **sculpture is in the Gupta style.**
- Earlier, a Brahmi inscription of the 4th or the 5th century AD carved out on an earthen lid was found in the same vicinity.
- Traditionally, the ancient Tulu Nadu was said to be ruled by the **Kadambas of Banavasi.**
- The **Guptas and the Kadambas of Banavasi had matrimonial relations.**
- Hence, the discovery of the Buddha sculpture is not an uncommon thing.
- But, it has thrown open a new chapter in the history of Udupi district and in the study of Buddhism in South India.

National Archives of India (NAI)

Context

- A group of archivists, scholars, historians, from across the world called for transparency in the proposed demolition of annexes which form part of the **National Archives of India (NAI)** in order to make way for the Central Vista project.

About

- The **National Archives of India (NAI)** is a repository of the non-current records of the Government of India and holds them in trust for the use of administrators and scholars.
- Originally established as the **Imperial Record Department in 1891**, in Calcutta, the capital of British India.
- In 1911 the Department was transferred to the new capital, New Delhi, and in 1926 it was shifted into its new building.
- NAI is situated at the intersection of Janpath and Rajpath.
- It is a building in late **neo-classical style, and originally known as the Imperial Record Office.**
- The holdings in the National Archives are in a regular series starting from the year 1748.
- The languages of the records include **English, Arabic, Hindi, Persian, Sanskrit and Urdu**, and their materials include paper, palm leaf, birch bark and parchment.
- The records are in four categories: **Public Records, Oriental Records, Manuscripts and Private Papers**.
- It is the biggest archival repository in South Asia.
- This museum provides a representative overview of the multifarious holdings of the National Archives, and promotes a common man's interest in archival holdings.
- It functions as an **Attached Office of the Department of Culture** under the **Ministry of Culture.**
- **Abhilekh patal** is an online portal to access National Archives of India's reference media and its digitized collections via the internet.

Nok Culture

Context

- Scientists have found traces of bee wax in the potteries unearthed in Nigeria.
- These potteries belong to the Nok Culture.

About

- Nok Culture is a civilization in **Central Nigeria** that first arose in 1,500 B.C. and lasted till 500 AD. So, people of Nok Culture belong to the Iron Age.
- The Nok were known for **elaborate terracotta sculptures** that were the oldest known figurine art in Africa.
- The Nok culture was present in a time and place where **early farmers and foragers co-existed.**
- **Note:** Practice of beekeeping dates back to 2600 BCE.

Panga ya Saidi

Context

- Scientists have found the oldest-known human burial in Africa.
- It dates back to 78,000 years ago at a cave site called **Panga ya Saidinear the Kenyan coast.**

Findings

- Remains of a child whose age was two to three years.
- Scientists have nicknamed the child as "Mtoto".

The site

- It is unclear when funerary behaviour began, but ancient Homo sapiens and our Neanderthal cousins both practised it.
- Homo sapiens first appeared in Africa more than 300,000 years ago, later spreading worldwide.

Oldest Burial Site

- The oldest apparent Neanderthal burial site,**Kebara Cave in Israel,**dates to about **120,000 years ago.**
- It is similar in age to the oldest-known Homo sapiens burials, also in Israel.

GEOGRAPHY

Kowloon peninsula

Context

- Hong Kong is set to grant a site on the western Kowloon peninsula to Beijing's national security office for its permanent base in the city.

About

- The Kowloon Peninsula forms the southern part of the main landmass in the territory of Hong Kong.
- Geographically, it refers to the area south of the mountain ranges of Beacon Hill, Lion Rock, Tate's Cairn, Kowloon Peak, etc.

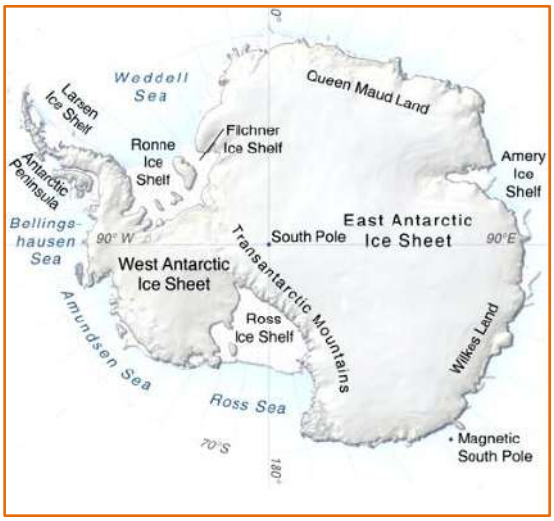
A-76

Context

- Recently, A-76, currently the world's largest floating iceberg, calved from the Filchner–Ronne Ice Shelf in Antarctica.
- Ice calving, also known as glacier calving or iceberg calving, is the breaking of ice chunks from the edge of a glacier.

About

- A-76, measures around 4320 sq km in size – currently making it the largest berg in the world.
- Ronne Ice Shelf, lies in the **Weddell Sea, in Antarctica.**



Vorukh

Context

- Kyrgyzstan said at least 31 people have been killed in heavy clashes at its disputed border with Tajikistan.

About

- Vorukh is the name of a village and one of two exclaves of Tajikistan within the **Batken Province of Kyrgyzstan.**
- It is surrounded by Kyrgyzstan that forms part of the city of Isfara in the Sughd Region.

Dahla Dam

Context

- The Taliban has captured Afghanistan's second-biggest dam after called Dahla Dam.

About

- Dahla Dam, also known as Arghandab Dam.
- It is located in the Shah Wali Kot District of Kandahar Province in Afghanistan, north of the provincial capital Kandahar.
- The Dahla Dam is built on the Arghandab River.
- The Dahla Dam was originally built between 1950 and 1952 by the USA.

Dams built by India in Afghanistan

- Shahtoot Dam on Kabul River.
- Afghanistan-India Friendship Dam (Salma Dam) on the Hari River in Heart Province.

Arctic Science Ministerial

Context

- India participated in the 3rd Arctic Science Ministerial (ASM3).

About

- It is the global platform for discussing research and cooperation in the Arctic region.
- The first two meetings; ASM1 and ASM2 were held in the USA in 2016 and Germany in 2018, respectively.
- The 3rd Arctic Science Ministerial was co-organised by Japan and Iceland and took place in Tokyo.

Arctic Region

- The Arctic consists of the Arctic Ocean, adjacent seas, and parts of Alaska (United States), Canada, Finland, Greenland (Denmark), Iceland, Norway, Russia, and Sweden.

Mount Nyaragongo

Context

- Thousands of people fled their homes in the Democratic Republic of Congo after a large volcano erupted.

About

- Mount Nyiragongo is an **active stratovolcano in the Virunga Mountains associated with the Albertine Rift.**
- It is located inside **Virunga National Park,** in the Democratic Republic of the Congo.
- Nyiragongo's lava lake has at times been the most voluminous known lava lake in recent history.
- Nyiragongo and nearby Nyamuragira are together responsible for 40 per cent of Africa's historical volcanic eruptions

SHIELD VOLCANO	CINDER CONE	COMPOSITE VOLCANO/ STRATOVOLCANO	LAVA DOME
• ***Eruption Style:*** gentle, lots of magma, lava fountains and bombs.	• ***Eruption Style:*** mildly explosive, erupt lava from a breach in side or base of volcano, gas-filled lava cools to become cinders.	• ***Eruption Style:*** explosive, violent, lava flows, lahar, pyroclastic flows, cinders and ash clouds.	• ***Eruption Style:*** slow, can be violent, lava does not flow far.
• ***Magma:*** hot, low viscosity (runny), fast moving,	• ***Magma:*** low viscosity, hot, soft.	• ***Magma:*** slightly cooler, thick and sticky, very viscous, foams and explodes violently.	• ***Magma:*** highly viscous.
• ***Gas:*** low levels, can escape from magma.	• ***Gas:*** expands and forms bubbles in lava, high levels.	• ***Gas:*** high levels, pressure from gas bubbles trying to escape.	• ***Gas:*** low levels.
• ***Shape:*** wide and low with gently sloping sides (from layers of lava flows cooling)	• ***Shape:*** steep sides, small crater, surrounded by debris of small red or black basalt rocks with little holes (rock solidifies around bubbles)	• ***Shape:*** regular shape, steep sided cones, rough landscape, layers of lava, rock and ash make it tall.	• ***Shape:*** hardened, thick layers of rock.
• ***Example:*** Mauna Loa, Hawaii.	• ***Example:*** Paricutin, Mexico.	• ***Example:*** Mt Fuji, Japan.	• ***Example:*** Mt St Helens, USA

Mekedatu project & Cauvery

Context

- Recently, the Karnataka government decided to challenge before the National Green Tribunal (NGT) its decision to set up a panel to look into the alleged violations at Mekedatu Project.

The Project

- 'Mekedatu', is at the confluence of **Cauvery and Arkavathi rivers,** near Kanakapura 100 kms from Bengaluru.
- In 2013, the project was announced.

- A multi-purpose balancing reservoir project over Mekedatu, it aimed at solving the drinking water problems of Bengaluru and Ramnagar district.

Tamil Nadu's objections

- Cauvery was already a deficit basin and the construction of the project, or any other project would drastically affect the lower riparian State in getting their due share of waters.

Cauvery

- It flows through the states of Karnataka and Tamil Nadu.
- The Kaveri river rises at **Talakaveri in the Brahmagiri range** in the Western Ghats, in Karnataka.
- It is the third largest river – after Godavari and Krishna – in South India and the largest in the State of Tamil Nadu.
- **Tributaries:**Harangi, Hemavati, Kabini, Bhavani, Lakshmana Tirtha, Noyyal and Arkavati.
- It forms **Shivanasamudra Falls, Hogenakkal Falls.**
- Three minor tributaries, Palar, Chinnar and Thoppar enter into the Kaveri on her course, above **Stanley Reservoir** in Mettur.

Dominica

Context

- Mehul Choksi, who is wanted in the Rs 13,500 crore PNB scam, has been traced and arrested in Dominica.

About

- Dominica is an island country in the Caribbean.
- The capital, Roseau, is located on the western side of the island.
- It is geographically situated as part of the **Windward Islands chain in the Lesser Antilles archipelago in the Caribbean Sea.**
- Dominica has been nicknamed the **"Nature Isle of the Caribbean"** for its natural environment.
- It is the **youngest island in the Lesser Antilles**, and in fact it is still being formed by geothermal-volcanic activity.

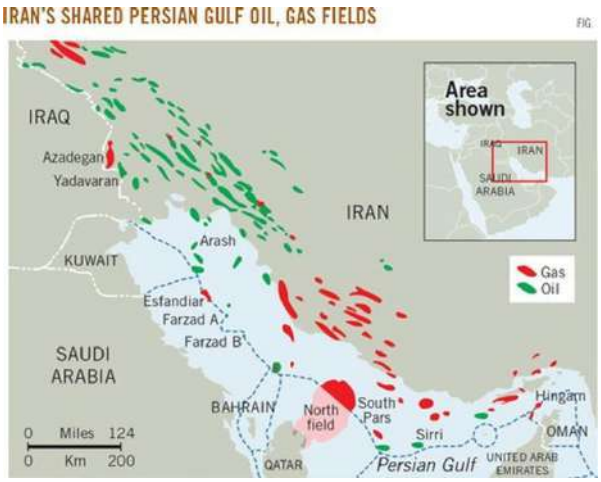
Farzad-B gas Field

Context

- India lost the ONGC Videsh Ltd-discovered Farzad-B gas field in the Persian Gulf after Iran awarded a contract for developing the giant gas field to a local company.

About

- Farzad-B is an off-shore natural gas field off Farsi Island in Iran.
- The field holds 23 trillion cubic feet of in-place gas reserves, of which about **60 per cent is recoverable.**
- It was discovered by ONGC Videsh Ltd (OVL), in 2008.



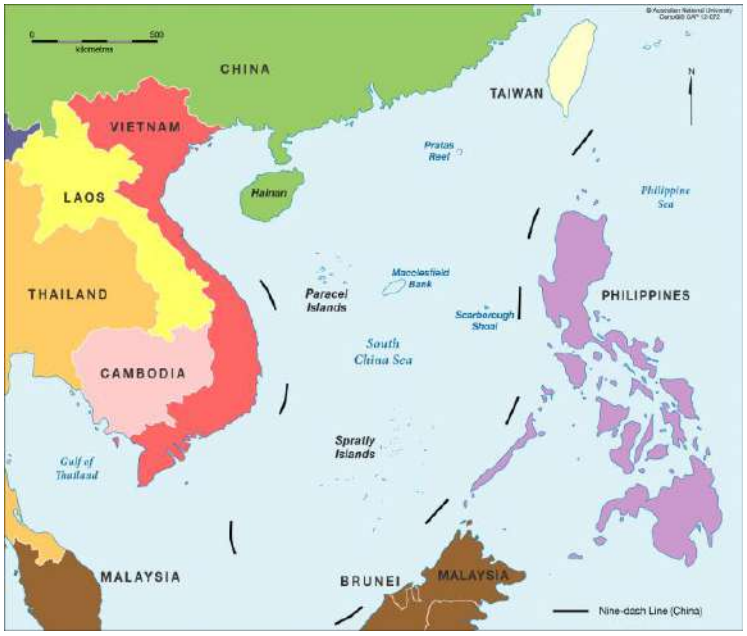
Paracel Islands

Context

- Recently, United States Navy sent a warship through waters in the disputed South China Sea near the Paracel Islands.

About

- Paracel islands are a disputed archipelago in the **South China Sea.**
- The archipelago includes **Dragon Hole**, the deepest underwater sinkhole in the world.
- The ownership of the islands remains hotly contested.
- China, Vietnam, and Taiwan all claim sovereignty, although China has de facto control of the islands.
- The archipelago includes about 130 small coral islands and reefs, most grouped into the northeast Amphitrite Group or the western Crescent Group.



Helmand

Context

- Fighting between the Taliban and Afghan government forces resumed in the restive southern province of Helmand.

About

- Helmand is located in the south of Afghanistan.
- Lashkargah serves as the provincial capital.
- Helmand was **part of the Greater Kandahar region** until made into a separate province by the Afghan government in the 20th century.
- The Helmand River flows through the mainly desert region of the province, providing water used for irrigation.
- Helmand is **one of the world's largest opium-producing regions**, responsible for around **42% of the world's total production.**
- This is more than the whole of **Burma, which is the second largest producing nation after Afghanistan.**
- Since the 2001 War in Afghanistan, Helmand Province has been a hotbed of insurgent activities.
- It has been considered to be Afghanistan's "most dangerous" province.

Sikkim

Context

- Statehood Day celebrated.

About

- Sikkim is bordered by Tibet to the north, by Bhutan to the southeast, West Bengal to the south, and by Nepal to the west.
- Precambrian rock is found in a big part of the state of Sikkim and hence is a significant part of Sikkim geology.
- The snow line in Sikkim is at about 6000 m.
- The Singalila Range encompasses the Western borders of Sikkim. In the East, the Chola Range separates Sikkim from its neighboring state. In the north, the Donkia range reaches out to the Tibetan Plateau.
- **Naku La Sector** is in East Sikkim.
- **The major peaks of Sikkim are:** Khangchendzonga (8596 m), Jonsang Talung, Kabru, Siniolchu , Simvo , Pandim , Rathang
- **Passes-** Cho La (Sikkim and Tibet), Dongkha La, Goecha La, Jelep La (Sikkim with Autonomous Region of Tibet), Nathu La(Sikkim with Autonomous Region of Tibet)
- **Lakes-** Tsomgo Lake, Khecheopairi Lake, Green Lake, Menmecho Lake, Karthok Lake, Samiti Lake, etc
- **Waterfalls:** Kanchendzonga waterfalls, Rimbi Waterfalls, Naga Waterfalls, Rukshyot Waterfalls, Bhim Nala Waterfalls.
- **Hotsprings:** Yumthang Hot Spring, Phurchachu Reshi Hot Spring, Ralang Hot Spring
- **Rivers:** Teesta, Rangit
- **Glaciers:** Zemu Glacier, Kangchendzonga Glacier, Rathong Glacier, Talung Glacier, Lhonak Glacier.

POLITY

Central Bureau of Investigation

Context

- Subodh Kumar Jaiswal appointed CBI Director for two years.

About Central Bureau of Investigation

Establishment

- The Central Bureau of Investigation (CBI) was set up in 1963 by a resolution of the Ministry of Home Affairs. Later, it was transferred to the Ministry of Personnel and now it enjoys the status of an attached office.
- The Special Police Establishment (which looked into vigilance cases) setup in 1941 was also merged with the CBI.
- The establishment of the CBI was **recommended by the Santhanam Committee on Prevention of Corruption (1962**–1964).
- The **CBI is not a statutory body. It derives** its powers from the Delhi Special Police Establishment Act, 1946.

Functions

- The CBI is the main investigating agency of the Central Government.
- It plays an important role in the prevention of corruption and maintaining integrity in administration.
- It also provides assistance to the Central Vigilance Commission and Lokpal.

Composition of CBI

- The CBI is headed by a Director.
- The Director of CBI has been provided security of two-year tenure in office by the CVC Act, 2003.
- The Central Government shall appoint the Director of CBI on the recommendation of a three-member committee consisting of the **Prime Minister as Chairperson, the Leader of Opposition in the Lok Sabha and the Chief Justice of India or Judge of the Supreme** Court nominated by him.

Parliamentary Committees

Context

- Recently, opposition parties has sought virtual meet of the parliamentary committees.

Response of the government

- It is not possible to hold a virtual meeting of parliamentary committees.
- A confidentiality clause of parliamentary functioning says that members have to be physically present for meetings.
- both houses have told the MPs that any change in the rule has to be ratified by Parliament and that is not possible right now as there is no session in progress.

Significance of Parliamentary Committees

- Provide for the deliberations among the parliamentarians.
- Makes up for the limited sitting of the parliament.
- Parliamentarians are not constrain by their political ideologies.
- These committees can seek outside expertise for deliberation on technical matter.
- They ensure accountability of the executive through debate and discussion on the policy.
- Very helpful in generation all-party consensus.
- Represents popular will
- Increases efficiency and effectiveness of the parliament

About Parliamentary Committee

Type	Standing: Permanent in nature Select: Made for specific purposes and diluted after completion of work. Like deliberation on the bills.
Powers	Draws their authority from Article 105 (Parliamentary Privileges) and 118 (Power of parliament to make rules)
Standing Committees	
Membership	LokSabha and Rajyasabha except for estimates committee which has members only from the LokSabha.
Departmental Standing Committee	Total 24 in nature 8 in Rajyasabha and 16 in LokSabha Related to a specific ministry or departments. Chairman is appointed by Speaker or Rajyasabha chairman as the case may be. Can't provide any cut motion Considers annual reports of the departments or ministry.
Finance Committee	Estimate Committee Committee on Public Undertaking Public Account Committee
Committees related to day to day business	Rules Committee Business advisory committee Committee on the absence of members Committee on private members bills and resolutions

GOVERNANCE

Compulsory Retirement

Context

- The Ministry of Home Affairs has revealed that 13 officers have been retired in public interest.

About it

- Compulsory retirement simply is not punishment.
- It is done in ' public interest' and does not caste a stigma on the government servant.
- The employee cannot claim an opportunity to be heard before he is compulsorily retired from service.

Court Guidelines

- When the Service of a **public servant is no longer useful to the general administration**, the officer can be compulsorily retired in public interest.
- Ordinarily the order of compulsory **retirement is not to be treated as a punishment under Article 311 of the Constitution.**
- For better administration, **it is necessary to chop off dead wood** but the order of compulsory retirement can be based after having due regard to the entire service record of the officer.

Supreme Court Guidelines in Baikunthnath Case

- An order of **compulsory retirement is not a punishment. It implies no stigma**. The order has to be passed by the Govt. in public interest.
- The order is **passed on the subjective satisfaction of the Govt**.
- Principles of natural justice have no place in the context of an order of compulsory retirement. However courts will interfere if the order is passed mala fide or there is no evidence or it is arbitrary.

Creation of a district

Context

- Punjab had declared Malerkotla the 23rd district of the State.

Creation of district

- The power to create new districts or alter or abolish existing districts rests with the State governments.
- This can either be done through an executive order or by passing a law in the State Assembly.
- Many States prefer the executive route by simply issuing a notification in the official gazette.
- The Centre has no role to play in the alteration of districts or creation of new ones. States are free to decide.

Changing the name of district

- State government needs to obtain a no objection certificate from Home Ministry when changing the name of a district.

Mid Day Meal Scheme

Context

- The Centre has decided to give about Rs. 100 each to children studying in Class 1 to Class 8 in government schools, who are beneficiaries of the Mid-Day Meal scheme.

About Mid-Day Meal Scheme:

- It was started in India on 15 August 1995 as 'National Programme of Nutritional Support to Primary Education (NP-NSPE)'.
- The Midday Meal Scheme is covered by the National Food Security Act, 2013.
- Under the MDM scheme, one meal is provided to all children enrolled in government schools, local body schools, government-aided schools, special training centres (STC), maktabs and madrasas supported under the SarvaShikshaAbhiyan.
- Cooked meals are provided to every child enrolled and attaining school from six to fourteen years. Meals are provided to children studying in Class I to VIII.
- The central and state governments share the cost of the Midday Meal Scheme, with the centre providing 60 percent and the states 40 percent.
- The central government provides grains and financing for other food. Costs for facilities, transportation, and labour is shared by the federal and state governments.

Objectives of Mid-Day Meal Scheme

- To increase **the enrolment in the schools of the children** who belong to disadvantaged sections of the society.
- To **increase the attendance of the children in government** and government-aided schools.
- To retain the children studying in class I to VIII.
- To **give nutritional support to the children studying in the elementary stage, especially in the drought-affected** areas.
- To address hunger and malnutrition and improve socialisation among castes.

Features Of Mid-Day Meal Scheme

- Every school **should have a hygienic cooking infrastructure** for hygienically cooked mid-day meals.
- The mid-day **meals are to be served only on the school premises** on all working days of the school.
- The **Food and Drugs Administration Department** of the State can collect samples for ensuring the quality and nutritional value of the meals.

- The **State Steering-cum Monitoring Committee (SSMC) will oversee** the implementation of this scheme, including establishing a mechanism to maintain the quality and nutritional standards of the meals.
- **Food allowance is provided to the children** when the cooked meals cannot be provided because of unforeseen circumstances.

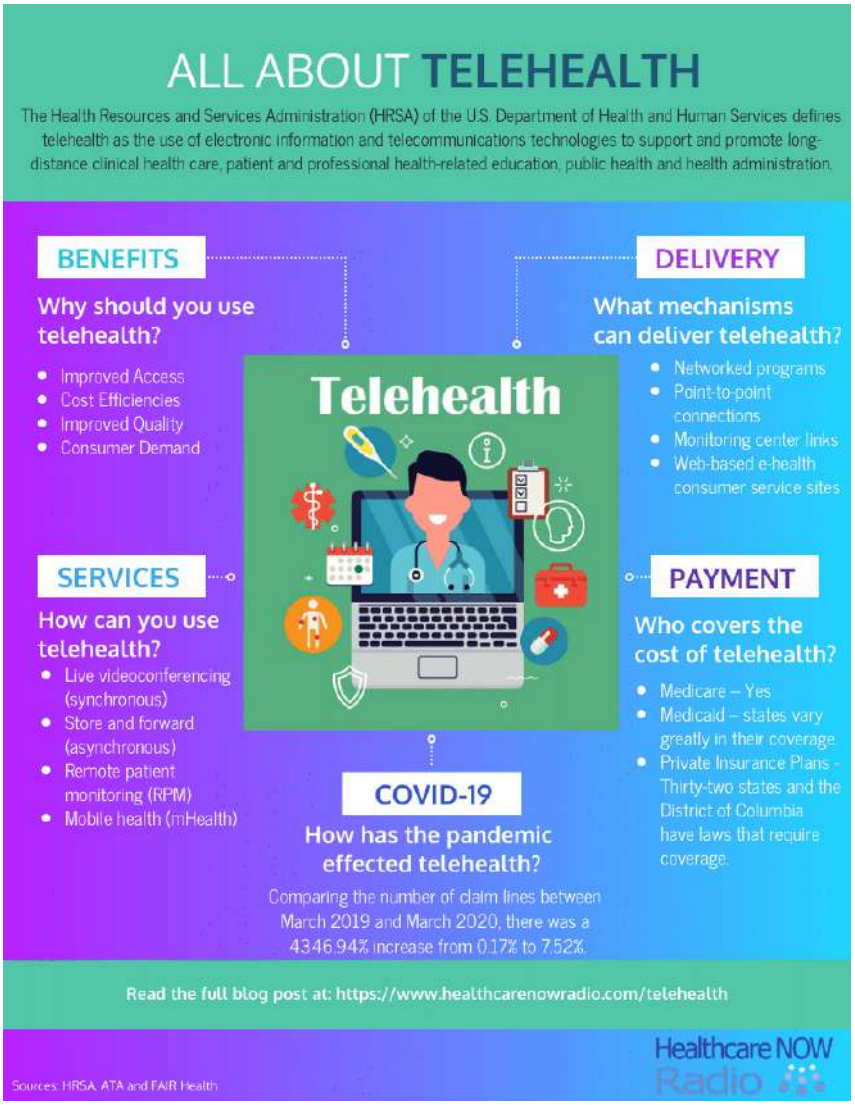
Services e-Health Assistance and Tele-consultation (SeHAT) portal

Context

- Defence Minister **launched the Services e-Health Assistance and Tele-consultation (SeHAT) portal,** which will provide tele-medicine services to serving military personnel, veterans and their families.
- The portal **will help to reduce the load on hospitals** and patients will be able to get contactless consultations in an easy and effective manner.

Telemedicine

- It refers to the **practice of caring for patients** remotely when the provider and patient are not physically present with each other.


ALL ABOUT TELEHEALTH
The Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services defines telehealth as the use of electronic information and telecommunications technologies to support and promote long-distance clinical health care, patient and professional health-related education, public health and health administration.
BENEFITS
Why should you use telehealth?
Improved Access
Cost Efficiencies
Improved Quality
Consumer Demand
DELIVERY
What mechanisms can deliver telehealth?
Networked programs
Point-to-point connections
Monitoring center links
Web-based e-health consumer service sites
Telehealth
SERVICES
How can you use telehealth?
Live videoconferencing (synchronous)
Store and forward (asynchronous)
Remote patient monitoring (RPM)
Mobile health (mHealth)
PAYMENT
Who covers the cost of telehealth?
Medicare – Yes
Medicaid – states vary greatly in their coverage
Private Insurance Plans - Thirty-two states and the District of Columbia have laws that require coverage.
COVID-19
How has the pandemic effected telehealth?
Comparing the number of claim lines between March 2019 and March 2020, there was a 4346.94% increase from 0.17% to 7.52%.
Read the full blog post at: https://www.healthcarenowradio.com/telehealth
Sources: HRSA, ATA and FAIR Health
Healthcare NOW Radio

Competition Commission of India

Context

- Union Minister of Finance and Corporate Affairs virtually commemorated the 12th Annual Day of the Competition Commission of India (CCI).

Competition Commission of India (CCI)

- The CCI was established under the **Competition Act, 2002**.
- It is the **competition regulator** in India.
- It is a **statutory body** of the Government of India responsible for enforcing The Competition Act, 2002 and promoting competition throughout India and to prevent activities that have an appreciable adverse effect on competition in India.
- CCI consists of a **Chairperson and 6 Members appointed by the Central Government.**
- It is the duty of the Commission to eliminate practices having adverse effect on competition, promote and sustain competition, protect the interests of consumers and ensure freedom of trade in the markets of India.
- The Commission is also required to give an opinion on competition issues on a reference received from a statutory authority established under any law and to undertake competition advocacy, create public awareness and impart training on competition issues.

State Disaster Response Fund

Context

- Recently, the Centre has released the first installment of the State Disaster Response Fund (SDRF) to States, in the wake of the second wave of Covid-19.

About the Fund

- The State Disaster Response Fund(SDRF) **has been constituted under the Disaster Management Act, 2005 and** is the primary fund available with state governments for responses to notified disasters.
- The **Central government contributes 75% towards the SDRF allocation for general category states and UTs, and over 90% for special category** states/UTs which includes northeastern states, Sikkim, Himachal Pradesh and Uttarakhand.
- The disasters **covered under the SDRF include cyclones, droughts, tsunamis, hailstorms, landslides, avalanches** and pest attacks among others.

Features of SDRF

- SDRF is located in **the 'Public Account' under 'Reserve Fund'.** (But direct expenditures are not made from Public Account.)
- **State Government has to pay interest on a half yearly basis** to the funds in SDRF, at the rate applicable to overdrafts.
- The **aggregate size of the SDRF for each state, for each year, is as per the recommendations of the Finance Commission.**
- The share of GoI to the SDRF is treated as **a 'grant in aid'.**
- **Comptroller and Auditor General of India (CAG) audit the SDRF every year.**

Directorate General of Civil Aviation

Context

- The aviation safety experts said that the DGCA (Directorate General of Civil Aviation) must punish **SpiceJet for the mid-air wedding over Madurai instead of scapegoating pilots and cabin crew who** were only following the instructions given to them by their airline.
- The biggest violation **by the airline is allowing a wedding group of more than 160 people when wedding events of more than 50** are banned by the State.
- None of the passengers can be seen wearing face visors and PPE suits, which are mandatory for passengers occupying the middle seats.
- The DGCA has repeatedly **warned airlines that passengers violating COVID-19 protocols must be offloaded and put on no-fly list**.
- This incident highlights **the lack of proper oversight on chartered flights. As the rules and protocols that apply for regular passenger flights** are often not enforced for non-scheduled or chartered operations.

About Directorate General of Civil Aviation

- It is the statutory body formed under the Aircraft (Amendment) Bill, 2020.
- It investigates aviation accidents and incidents, maintains all regulations related to aviation and is responsible for issuance of licenses pertaining to aviation like PPL's, SPL's and CPL's in India.
- The Government of India is planning to replace the organisation with a Civil Aviation Authority (CAA), modelled on the lines of the American Federal Aviation Administration (FAA).

Functions of DGCA

- Registration of civil aircraft
- Certification of airports
- **Licensing to pilots, aircraft maintenance engineers, air traffic controllers and flight engineers**, and conducting examinations and checks for that purpose
- **Formulation of standards of airworthiness for civil aircraft registered** in India and grant of certificates of airworthiness to such aircraft

- **Conducting investigation into incidents and serious incidents involving aircraft up to 2250 kg AUW** and taking accident prevention measures, including formulation of implementation of Safety Aviation Management Programmes
- Checks on the proficiency of flight crew and other operational personnel such as flight dispatchers and cabin crew.

National Crisis Management Committee

Context

- The National Crisis Management Committee (NCMC) under the Chairmanship of Cabinet Secretary met to review the relief and restoration efforts made by the State Governments and Union Territory Administrations in the aftermath of the Cyclonic storm 'Tauktae'.

About National Crisis Management Committee

- It is a committee set up by the Government of India in the wake of a natural calamity for **effective coordination and implementation of relief measures and operations**.
- It **is headed by Cabinet Secretary**.
- On the constitution of such a committee, the Agriculture Secretary shall provide all necessary information to and seek directions.
- It has been constituted in the Cabinet Secretariat.

Waqf Board

Context:

- The Uttar Pradesh Sunni Central Waqf Board condemned the demolition of a mosque in a tehsil compound in Barabanki district by the administration, terming it a "patently illegal and high-handed action" and demanded its restoration.

Central Waqf Council:

- It is an **Indian statutory body** established in **1964** by the Government of India under the Waqf Act, 1954 (now a subsection of the **Waqf Act, 1995**) for the purpose of **advising it on matters pertaining to the working of the State Waqf Boards and proper administration of the Waqfs in the country.**
- Waqf is a **permanent dedication of movable or immovable properties for religious, pious or charitable purposes** as recognized by Muslim Law, given by philanthropists.
- The grant is known as **mushrut-ul-khidmat,** while a person making such dedication is known as Wakif.
- The Council is headed by a Chairperson, who is the **Union Minister in charge of Wakfs** and there are maximum 20 other members, appointed by Government of India as stipulated in the Wakf Act.

Pradhan MantriSwasthya Suraksha Yojana

Context

- New AIIMS started under Pradhan MantriSwasthya Suraksha Yojana are providing advanced COVID Care in States.

About Pradhan MantriSwasthya Suraksha Yojana (PMSSY)

- Pradhan MantriSwasthya Suraksha Yojana (PMSSY), a **Central Sector Scheme,** was announced in August 2003 to **address imbalances in availability of tertiary care hospitals and improve medical education in the country.**
- The **first phase in the PMSSY** has two components - setting up of six institutions in the line of AIIMS; and upgradation of 13 existing Government medical college institutions.
- In the **second phase of PMSSY,** the Government has approved the setting up of two more AIIMS-like institutions, one each in the States of West Bengal and Uttar Pradesh and upgradation of six medical college institutions.
- In the **third phase of PMSSY,** it is proposed to upgrade the other existing medical college institutions.
- The project cost for upgradation of each medical college institution has been estimated at Rs. 150 crores per institution, out of which Central Government will contribute Rs. 125 crores and the remaining Rs. 25 crore will be borne by the respective State Governments.

Pradhan Mantri Bhartiya Janaushadhi Pariyojana

Context

- Pradhan MantriBhartiyaJanaushadhiKendras (PMBJKs), Bureau of Pharma PSUs of India (BPPI), distributors and other stakeholders have come together and are contributing in the fight against the current wave of Covid 19 pandemic.

Pradhan Mantri Bhartiya Janaushadhi Pariyojana

- The 'Jan Aushadhi Scheme' has been revisited and renamed as 'Pradhan MantriBhartiyaJanaushadhiPariyojana' (PMBJP).
- The Scheme is being implemented through a **registered society namely Bureau of Pharma PSUs of India (BPPI)** which is working under the administrative control of **Department of Pharmaceuticals, Ministry of Chemicals & Fertilizers, Government of India.**

Objectives of the Scheme

- To make available **quality medicines consumables and surgical items at affordable prices for all** and thereby reduce out of pocket expenditure of consumers/patients.
- To **popularize generic medicines** among the masses and dispel the prevalent notion that low priced generic medicines are of inferior quality or are less effective.
    - **Generic drugs** are copies of brand-name drugs that have exactly the same dosage, intended use, effects, side effects, route of administration, risks, safety, and strength as the original drug. In other words, their **pharmacological effects are exactly the same as those of their brand-name counterparts**.
- Generate employment by engaging individual entrepreneurs in the opening of PMBJP Kendras.

Quality of Medicines under the Scheme

- The medicines listed in the product list of PMBJP are procured **only from the World Health Organization – Good Manufacturing Practices (WHO-GMP) certified** suppliers for ensuring the quality of the products.
- Apart from this, each batch of the drug is tested at laboratories accredited by the **'National Accreditation Board for Testing and Calibration Laboratories'** (NABL). Only after passing the quality tests, the medicines are dispatched to PMBJP Kendras.

Savings to the common man

- A medicine under PMBJP is **priced on the principle of a maximum of 50% of the average price of the top three branded medicines.**
- Therefore, the price of Jan Aushadhi Medicines is cheaper at least by 50% and in some cases, by 80% to 90% of the market price of branded medicines.

Suvidha Sanitary Napkins

- To ensure easy availability of the menstrual health services to all women across India, on the eve of world environment day on 4th June, 2018 "**Janaushadhi Suvidha Oxy-Biodegradable Sanitary Napki**n" was launched by the Department of Pharmaceuticals @ Rs. 1.00 per sanitary pad.

Janaushadhi Sugam

- A mobile application "JanaushadhiSugam" has been also launched for facilitating the general public by providing a digital platform at the tip of their fingers, by the virtue of which they can avail a host of user-friendly options like - locate nearby PMBJK (direction guided through Google Maps), search janaushadhi medicines, analyze product comparison of Generic vs Branded medicine in the form of MRP & overall Savings, etc.

Bureau of Pharma Public Sector Undertaking of India (BPPI)

- It is an **independent society**, registered under the Societies Registration Act, 1860 and set up by the pharma PSUs with a major objective to have focused and empowered structure to implement the Janaushadhi Campaign initiated by the Department of Pharmaceuticals.
- The Bureau is **headed by the Chief Executive Officer** (CEO), who reports to the Governing Council of the Bureau.

Governing Council (GC) for Bureau of Pharma PSUs of India

- Governing Council (GC) is the **apex policy-making body** consists of Secretary, Department of Pharmaceuticals as a Chairperson, Joint Secretary and Managing Directors of five Pharmaceuticals PSUs of this Department. Besides, CEO, BPPI and Director/DS/US of Internal Financial Division.

SOCIAL JUSTICE

Particularly Vulnerable Tribal Group

Context

- Many individuals belonging to the DongriaKondh community and Bonda community have tested positive for COVID-19.

About Tribes in news

- DongriaKondh is a PVTG in the Niyamgiri Hill range of Rayagada district in Odisha.
- Bonda community is a PVTG in Bonda Hill in Malkangiri district of Odisha.

About PVTG

- In **1973, the Dhebar Commission created Primitive Tribal Groups (PTGs**) as a separate category, which are less developed among the tribal groups.
- Government of India follows the following criteria for identification of PVTGs.
  - Pre-agricultural level of technology
  - Low level of literacy
  - Economic backwardness
  - A declining or stagnant population.
- **Accordingly 75 PTVGs** have been identified in the country.
- Among the **75 listed PVTG's the highest number are found in Odisha**.
- PVTGs have some basic characteristics -they are mostly homogenous, with a small population, relatively physically isolated, social institutes cast in a simple mould, absence of written language, relatively simple technology and a slower rate of change etc.

PVTG in Odisha

- The PVTGs of the state have been identified as: **Bonda, Birhor, Chuktia, Didayi, DongariaKandha, Juang, Kharia, KutiaKondh, LanjiaSaora, Lodha, Mankirida, PaudiBhuyan** and **Saora.**

One Stop Centre Scheme (OSCs)

Context

- Over 3 Lakh Women Provided Assistance Through 701 One Stop Centres in 35 States/UTs.

About One Stop Centre Scheme (OSCs)

- **Ministry of Women and Child Development** (MWCD), has formulated a **Centrally Sponsored Scheme** for setting up One Stop Centre, a sub - scheme of Umbrella Scheme for **National Mission for Empowerment of women** including Indira Gandhi MattritavSahyaogYojana.
- Popularly known as **Sakhi,** the scheme is being implemented since 1st April 2015.

- These Centres are being established across the country **to provide integrated support and assistance under one roof to women affected by violence, both in private and public spaces in phased manner.**

Objective

- To support women affected by violence, in private and public spaces, within the family, community and at the workplace.
- To facilitate immediate, **emergency and non - emergency access to a range of services including medical, legal, psychological and counselling support** under one roof to fight against any forms of violence against women.

Target group

- All **women including girls below 18 years of age** affected by violence, irrespective of caste, class, religion, region, sexual orientation or marital status.

Services offered in OSCs

- Emergency Response and Rescue Services
- Medical assistance
- Psycho - social support/ counselling
- Legal aid and counselling
- Shelter (SwadharGreh/Short Stay Homes)
- Video Conferencing Facility
- Accessing One Stop Centre

Implementing Agency

- State Government/ UT Administration.

Funds

- The Scheme will be funded through **Nirbhaya Fund.**
- The Central Government will provide 100% financial assistance to the State Government /UT Administrations under the Scheme.

DeendayalAntodayayYojana- National Rural Livelihoods Mission (DAY-NRLM)

Context

- In response to the rapid surge of COVID-19 cases, DeendayalAntodayayYojana- National Rural Livelihoods Mission, Ministry of Rural Development initiated online trainings for State Rural Livelihoods Mission (SRLM) staff across 34 states and union territories under its fold.

Need of this move

- To **capacitate SRLM staff to roll-out trainings** for over 69 lakh Self-Help Groups (SHG) under DAY-NRLM's network.
- Training focussed on COVID-19 appropriate behaviours, COVID-19 vaccines, health seeking behaviours and immunity building.

About DeenDayalAntyodayaYojana

- DeenDayalAntyodayaYojana - National Livelihoods Mission (NRLM) was launched by the **Ministry of Rural Development** (MoRD), in June 2011 as a **restructured version of SwarnaJayanti Gram SwarozgarYojna (SGSY).**
- **Aim:** Creating efficient and effective institutional platforms of the rural poor enabling them to increase household income through sustainable livelihood enhancements and improved access to financial services.
- The poor would be facilitated to achieve increased access to their rights, entitlements and public services, diversified risk and better social indicators of empowerment.
- NRLM believes in **harnessing the innate capabilities of the poor** and complements them with capacities (information, knowledge, skills, tools, finance and collectivization) to participate in the growing economy of the country.
- The scheme started with an agenda to cover **7 Crore rural poor households** via Self Help Groups (SHGs) and federated institutions and support them for livelihoods collectives in 8-10 years.

Community Based Inclusive Development (CBID) Program

Context

- Union Minister of Social Justice & Empowerment launched a 6- month Community Based Inclusive Development (CBID) Program on rehabilitation of Divyangjan.

About CBID Program

- It is would enable our country to develop trained manpower for rehabilitation and development of Divyangjan to ensure their empowerment and inclusiveness in the society.
- This trained manpower will help in identifying risk cases, apprising the parents/guardians about the nearest early intervention centres, and guiding them for availing Government benefits for Divyangjan.
- It aims to create a pool of grass-root rehabilitation workers at community level who can work alongside ASHA and Anganwadi workers to handle cross disability issues and facilitate inclusion of persons with disabilities in the society.
- The program has been designed to provide competency based knowledge and skills among these workers to enhance their ability for successfully discharging their duties.
- These workers will be called 'DivyangMitra' i.e. friends of persons with disabilities.
- Initially the programme will be available in English, Hindi and 7 regional languages, namely, Gujarati, Marathi, Odiya, Bengali, Telugu, Tamil and Garo.
- This CBID course has been co-designed by **Rehabilitation Council of India and University of Melbourne** as a joint initiative under the Memorandum of Understanding signed between the Government of **Australia and the Government of India** on cooperation in disability sector.

YUVA- (Young, Upcoming and Versatile Authors) Mentorship programme

Context

- The Ministry of Education launched YUVA- Prime Minister's Scheme For Mentoring Young Authors.

About YUVA Programme

- It is an **Author Mentorship programme** to train young and budding authors belows 30 years.
- The YUVA (Young, Upcoming and Versatile Authors) aim **to encourage young writers to write about India's freedom struggle.**
- It will encourage young generation to write about freedom fighters, and incidents associated with freedom struggle.
- YUVA is a **part of India@75 Project** to bring to the fore the perspectives of the young generation of writers on themes like Unsung Heroes, Freedom Fighters, Unknown and Forgotten Places.

About India@75

- India@75 is an industry-led movement which brings together different stakeholders of society to create a morally, economically and technologically advanced country.
- It has been initiated by Confederation of Indian Industries (CII).

Eklavya Model Residential Schools (EMRS) and Ashram Schools

Context:

- Ministry of Tribal Affairs and Microsoft sign MoU on Joint initiative for Digital Transformation of Tribal Schools
- The collaboration seeks to skill educators and students in next-generation digital technologies including Artificial Intelligence..
- The initiative will:
  - enable professional development of educators, enabling them to use technology in classrooms.
  - accelerate digital transformation
  - create accessible and personalized learning experiences for every student
  - achieve UN's Sustainable Development Goals (SDGs)

About Eklavya Model Residential Schools (EMRS)

- Eklavya Model Residential Schools (EMRS) are set up in States/UTs with grants under **Article 275(1)** of the Constitution of India.
- The scheme is being **implemented by the Ministry of Tribal Affairs**, Government of India.
- **Objective of EMRS**: To **provide quality middle and high level education to Scheduled Tribe (ST) students** in remote areas, not only to enable them to avail of reservation in high and professional educational courses and as jobs in government and public and private sectors but also to have access to the best opportunities in education at par with the non ST population.
- As per existing EMRS Guidelines of 2010, at least **one EMRS is to be set up in each Integrated Tribal Development Agency (ITDA) / Integrated Tribal Development Project (ITDP) having 50% ST population in the area.**

UNION BUDGET 2021-22
Piped water supply to all rural households by 2024
Integrated demand and supply side management of water at the local level
JAL JEEVAN MISSION
Will converge with other Central and State Government Schemes
Creation of local infrastructure for rainwater harvesting, groundwater recharge and management of household waste water for reuse in agriculture

National Jal Jeevan Mission

Context

- National Jal Jeevan Mission has reached out to all States/ UTs for rolling out of sensor based IoT solution to measure and monitor water supply in rural areas.

About Jal Jeevan Mission

- Jal Shakti is the nodal Ministry for the Jal Jeevan Mission.
- It will provide functional household tap connections to 14.6 crore rural households by 2024 at a provisional cost of Rs.3.6 lakh crores.
- It also aims to create local infrastructure for rainwater harvesting, groundwater recharge and management of household wastewater for reuse in agriculture.
- According to the data published in various reports, about half of the country's households do not have access to piped water supply.
- Jal Jeevan Mission (JJM) focuses on water service delivery at the household level, i.e. supply of 55 lpcd of water of prescribed quality on a regular and long-term basis.
- Under the Mission Gram Panchayat or its sub-committee, i.e. Village Water & Sanitation Committee/ PaniSamiti are required to function as a 'local public utility' for drinking water management, water service delivery, grey water treatment & reuse, and take care of operation and maintenance of in-village water supply infrastructure for assured drinking water supplyto every rural household on regular and long-term basis.

INTERNATIONAL RELATIONS

Diplomatic Immunity

Context

- Belgian ambassador's wife claims diplomatic immunity after slapping a Seoul store assistant.

What is diplomatic immunity?

- It is a privilege of exemption from certain laws and taxes granted to diplomats by the country in which they are posted.
- The custom was formed so that diplomats can function without fear, threat or intimidation from the host country.
- Diplomats posted in an embassy get immunity, along with his or her family members.
- **Legal basis: Vienna Conventions, the** Convention on Diplomatic Relations, 1961, and the Convention on Consular Relations, 1963.

- They have been ratified by 187 countries, including South Korea. Which means, it is a law under that country's legal framework and cannot be violated.

- **Extent of this immunity:**
  - The immunity enjoyed by a diplomat posted in the embassy is "inviolable".
  - The diplomat cannot be arrested or detained and his house will have the same inviolability and protection as the embassy.
- **Exceptions:**
  - Diplomat's home country can waive immunity but this can happen only when the individual has committed a 'serious crime', unconnected with their diplomatic role or has witnessed such a crime.

International Atomic Energy Agency (IAEA)

Context

- Iran's Parliament denied international inspectors access to surveillance images of the Islamic Republic's nuclear sites.
- The Islamic Republic is already enriching and stockpiling uranium at levels far beyond those allowed by its 2015 nuclear deal.

About Joint Comprehensive Plan of Action

- It is an agreement on the Iranian nuclear program reached in Vienna in 2015, between Iran and the P5+1 (the five permanent members of the United Nations Security Council—China, France, Russia, United Kingdom, United States—plus Germany) together with the European Union.
- The agreement between the P5+1 powers and Iran was an interim deal, in which Iran agreed to roll back parts of its nuclear program in exchange for relief from some sanctions.

About IAEA

- In 1957 IAEA was created in response to rapid advancement and diverse uses of nuclear technology.
- This **"Atoms for Peace"** organization was established **independently from the United Nations**, through its own Statute that defines its structure and functions.
- It reports to both the **United Nations General Assembly and Security Council**.
- IAEA has its headquarters in **Vienna, Austria.**
- **IAEA Functions:**
  - It **researches use of atomic energy** in other areas such as agriculture, industry and medicine.
  - IAEA's plays crucial role in **generating public awareness** and supporting efforts to make nuclear power more affordable
  - It advises its members about **developing and operating nuclear power stations** and **disposing of radioactive waste.**

UNHRC resolution

Context

- India was among 14 countries that abstained from voting on a resolution at the U.N. Human Rights Council to launch an investigation into alleged violations and crimes during the 11-day conflict between Israel and Hamas in Gaza.
- China and Russia were among those voting in favour.

About United Nations Human Rights Council(UNHRC)

- It is a United Nations body whose mission is to promote and protect human rights around the world.
- Headquarters: Geneva, Switzerland.
- **Structure:**
  - It has **47 members elected for staggered three-year terms** on a regional group basis.
  - The term of **each seat is three years**, and no member may occupy a seat for more than two consecutive terms.
- **Sessions:**
  - It holds regular sessions three times a year, in March, June, and September.

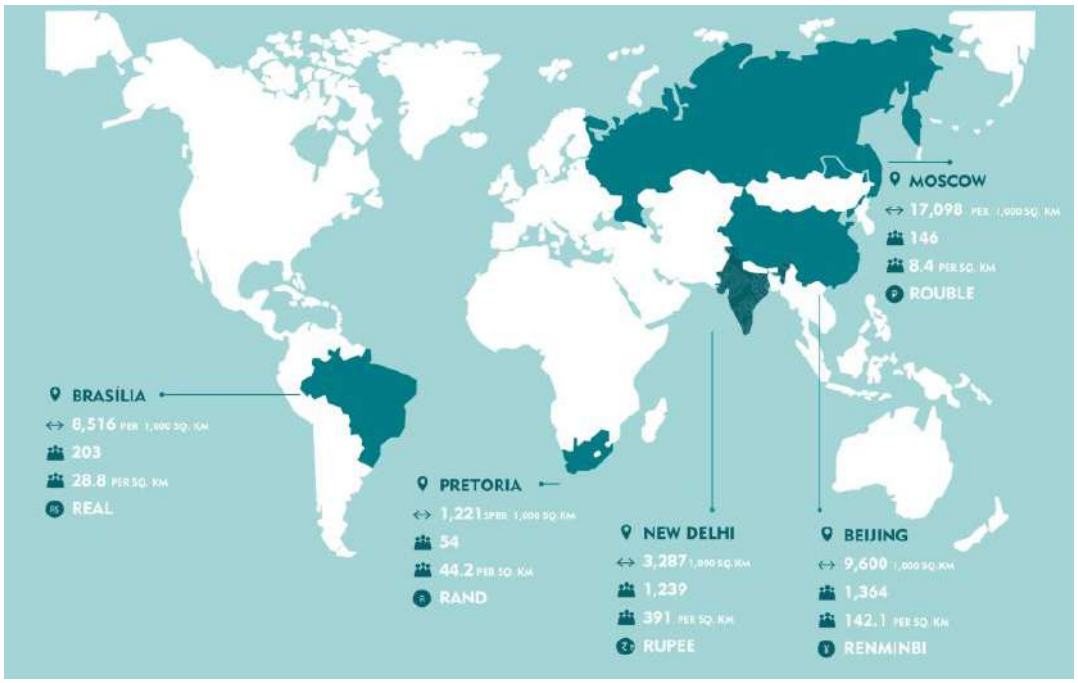
- **Members:**
  - 13 for the African Group, 13 for the Asia-Pacific Group, 6 for the Eastern European Group, 8 for the Latin American and Caribbean Group, 7 for the Western European and Others Group
- **Universal Periodic Review Working Group:**
  - It periodically examines the human rights performance of all 193 UN Member States.
  - It is intended to complement, not duplicate, the work of other human rights mechanisms, including the UN human rights treaty bodies.

BRICS

Context

- BRICS meeting deliberated on emerging issues in Biotechnology and Biomedicine.

Details



- The members of the working group on Biotechnology and Biomedicine suggested future directions of research collaboration among BRICs countries in the areas such as Antimicrobial Resistance, Artificial Intelligence and Digital Health Medicine, Non-Communicable Diseases, Neurological Disorders, Agro-biotechnology, Food and Nutrition, Cancer, long Post-Covid Challenges and Complications including Molecular Pathogenesis of COVID-19 virus.
- The meeting was sponsored by, Department of International Cooperation, Ministry of Science and Technology (MOST), China and was organized by the China National Center for Biotechnology Development.

About BRICS

- It is an **informal group of states** comprising the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China and the Republic of South Africa.
- Originally the first four were grouped as "BRIC" (or "the BRICs"), before the **induction of South Africa in 2010**.
- At the **Fortaleza Summit (2014), in Brazil**, important institutions were created: the **New Development Bank (NDB)** and the **Contingent Reserve Arrangement (CRA)**.

G-7

Context

- U.S. Deputy Treasury Secretary anticipates strong support from the G7 industrial democracies for the Biden Administration's proposed 15%-plus global minimum corporate tax.

About G-7

- Group of seven (G-7) is a collective of seven world's most industrialized and developed economies. These seven countries are **Canada, France, Germany, Italy, Japan, the United Kingdom** and the **United States**.
- **India is not** a member of G-7.

- **European Union** is also represented at the G-7 summit. It holds all the privileges and obligations of membership but without the right to host or chair a summit.
- This forum was originally formed to discuss economic and political concerns raised by the **1973 oil crisis**.
- Together, the G-7 countries represent **40% of global GDP and 10% of the world's population.**
- Russia belonged to this forum from 1998 to 2014, then it was called the Group of Eight (G-8), but Russia was expelled following its annexation of the Crimea region of Ukraine.
- The G-7 members are
  - Leading export countries
  - Largest gold reserves holder
  - Largest nuclear energy producers
  - Top contributors to the UN budget

AGRICULTURE

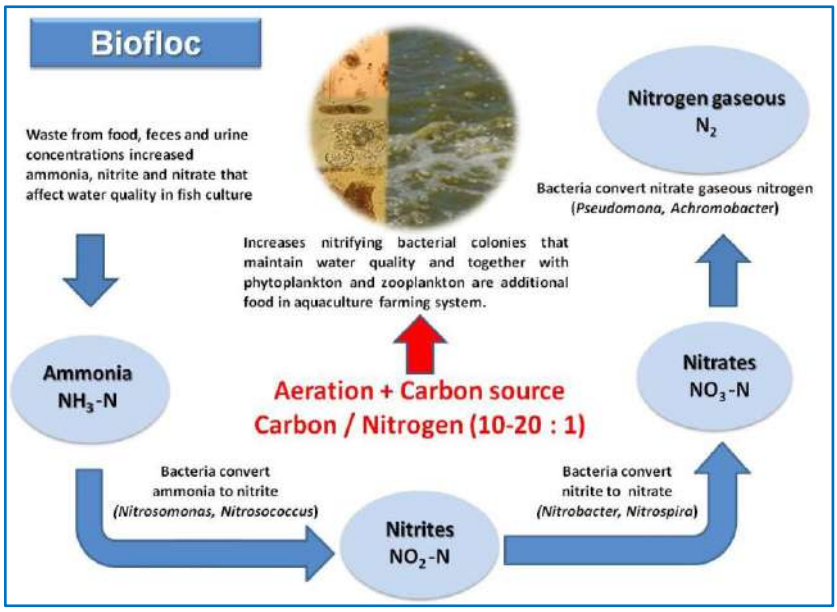
Biofloc method for Vannamei farming

Context

- The Kerala University of Fisheries and Ocean Studies (Kufos) is looking to deploy the biofloc method to farm Vannamei shrimp.
- The fish that is now being widely cultivated using the technology is the genetically-modified farmed tilapia (GIFT).
- Such ventures can be turned into economically-remunerative ones for farmers by switching the candidate species to Vannamei shrimp.

Biofloc technology

- Biofloc system is a **wastewater treatment** which has gained vital importance as an approach in aquaculture.
- The principle of this technique is the **generation of nitrogen cycle** by maintaining **higher C: N ratio** through stimulating heterotrophic microbial growth, which assimilates the nitrogenous waste that can be exploited by the cultured spices as a feed.
- The biofloc technology is **not only effective in treating the waste** but also **grants nutrition to the aquatic animal**.
- The higher C : N is maintained through the **addition of carbohydrate sources (molasses)** and the **water quality is improved** through the production of high quality single cell microbial protein.


Biofloc
Waste from food, feces and urine concentrations increased ammonia, nitrite and nitrate that affect water quality in fish culture
Nitrogen gaseous N_2
Bacteria convert nitrate gaseous nitrogen (Pseudomona, Achromobacter)
Increases nitrifying bacterial colonies that maintain water quality and together with phytoplankton and zooplankton are additional food in aquaculture farming system.
Ammonia NH_3-N
Aeration + Carbon source
Carbon / Nitrogen (10-20 : 1)
Nitrates NO_3-N
Bacteria convert ammonia to nitrite (Nitrosomonas, Nitrosococcus)
Nitrites NO_2-N
Bacteria convert nitrite to nitrate (Nitrobacter, Nitrospira)

Shahi Litchi

Context

- In a major boost to export of GI certified products, season's first consignment of Shahi Litchi from Bihar was exported to the United Kingdom.

About Shahi litchi

- It was the fourth agricultural product to get GI certification from **Bihar** in 2018, after **Jardalu mango, Katarni rice and Maghai paan**.
- Muzaffarpur, Vaishali, Samastipur, Champaran, Begusarai districts and adjoining areas of Bihar have favorable climate for growing Shahi Litchi.
- India is the second largest producer of litchi (Litchi chin) in the world, after China.
- Bihar tops in terms of production of litchi.

Jackfruit:

- **News:** Nearly 1.2 tonnes of fresh jackfruit from **Tripura** was for the first time exported to London.
- India is the **largest producer of jackfruit** in the world, and long believed to be its place of origin.
- It grows in the **Western Ghats, in the south**, and at scattered locations in the **north and east**.
- It is eaten as a vegetable when tender, raw, or semi-ripe, and as a fruit when ripe.
- It is the state fruit of the Indian states of **Kerala and Tamil Nadu.**

Village rice:

- **News:** Patented 'village rice' from Kumbakonam in Tamil Nadu's Thanjavur district exported to Ghana, Yemen.
- This variety's unique feature is enriched with protein, fibre, and various minerals.

About GI tags

- A geographical indication or GI is a **sign used on products** that have a **specific geographical origin** and possess qualities or a reputation that are due to that origin.
- Geographical Indications are part of the intellectual property rights that come under the **Paris Convention for the Protection of Industrial Property.**
- In India, Geographical Indications registration is administered by the **Geographical Indications of Goods (Registration and Protection) Act of 1999**.

ECONOMY

PM CARES Fund

Context

- PM CARES Fund approves procurement of 1.5 lakh units of SpO2 based oxygen supply system developed by DRDO.

Oxycare

- Oxycare' system is developed by the Defence Research and Development Organisation (DRDO).
- It is a SpO2 based Oxygen Supply System, which regulates the oxygen being administered to patients based on the sensed SpO2 levels.
- This system was developed by Defence Bio-Engineering & ElectroMedical Laboratory (DEBEL), Bengaluru of DRDO for soldiers posted at extreme high-altitude areas.
- These Oxycare systems can be used at Homes, Quarantine Centres, COVID Care Centres and Hospitals.
- The DRDO has transferred the technology to multiple industries in India, which will be producing the Oxycare systems.

PM CARES Fund

- PM CARES Fund is a public charitable trust.
- It has been set up keeping in mind the need for having a dedicated fund with the primary objective of dealing with any kind of emergency or distress situation.
- **Trustees**
  - The **Prime Minister is Chairperson (ex-officio)** of the PM CARES Fund and **Minister of Defence, Minister of Home Affairs and Minister of Finance** are ex-officio Trustees of the Fund.
  - The Chairperson of the Board of Trustees of PM CARES Fund has the power to **nominate three trustees to the Board**.
  - All the Trustees of the PM CARES Fund act in a **pro bono capacity**.
- **Legal framework**
  - PM CARES Fund has been registered as a **Public Charitable Trust**.
  - The trust deed of PM CARES Fund has been registered under the Registration Act, 1908.
- **Income Tax:**
  - The fund is exempted from paying Income Tax as per Section 10(23)(c) of Income Tax Act, 1961.
- **CSR expenditure**
  - Any contribution made to the PM CARES Fund by any Company or a PSU shall qualify as Corporate Social Responsibility (CSR) expenditure as provided under the Companies Act, 2013.

Sovereign Gold Bonds scheme

Context

- The Government of India, in consultation with the Reserve Bank of India, has decided to issue Sovereign Gold Bonds. The Sovereign Gold Bonds will be issued in six tranches from May 2021 to September 2021.

About Sovereign Gold Bond (SGB)

- SGBs are government securities denominated in **grams of gold**.
- They are substitutes for **holding physical gold**.
- Investors have to pay the issue price in cash and the bonds will be redeemed in cash on maturity.
- **Issuer:** The Bond is **issued by the Reserve Bank** on behalf of the Government of India.
- The SGB offers a superior alternative to **holding gold in physical form**. The risks and costs of storage are eliminated.
- Investors are **assured of the market value** of gold at the time of maturity and periodical interest.
- **Eligible Investor:** Eligible investors include individuals, HUFs, trusts, universities and charitable institutions.
- **Limit:** Minimum investment in the Bond shall be one gram with a maximum limit of subscription of 4 kg for individuals, 4 kg for Hindu Undivided Family (HUF) and 20 kg for trusts and similar entities notified by the government from time to time per fiscal year.

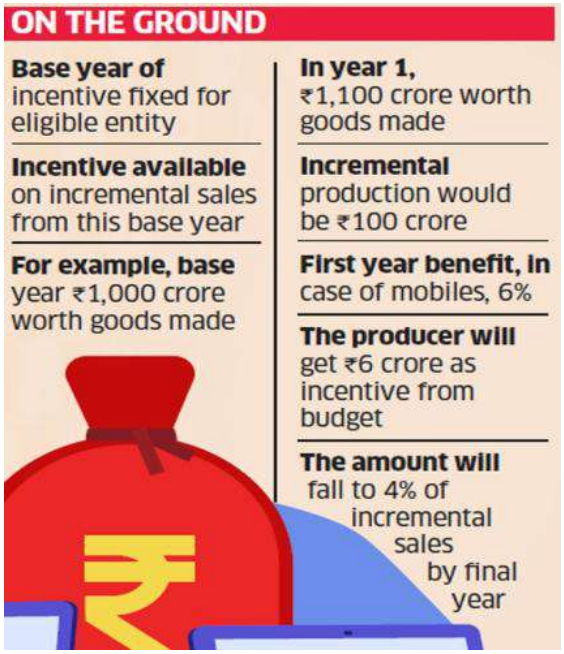
Production Linked Incentive Scheme

Context

- Ministry of Food Processing Industries issues guidelines for 'Production Linked Incentive Scheme for the Food Processing Industry' for implementation during 2021-22 to 2026-27 with an outlay of Rs. 10,900 crores.

Details

- **Aim:** To support creation of global food manufacturing champions commensurate with India's natural resource endowment and support Indian brands of food products in the international markets.
- **Applicants:** Applicant for the Scheme shall be
  - Proprietary Firm or Partnership Firm or Limited Liability Partnership (LLP) or a Company registered in India
  - Co-operatives; and
  - SME and making an application for seeking approval for coverage under the Scheme.


ON THE GROUND
Base year of incentive fixed for eligible entity
Incentive available on incremental sales from this base year
For example, base year ₹1,000 crore worth goods made
In year 1, ₹1,100 crore worth goods made
Incremental production would be ₹100 crore
First year benefit, in case of mobiles, 6%
The producer will get ₹6 crore as incentive from budget
The amount will fall to 4% of incremental sales by final year

The LINK Fund

Context

- TRIFED joins hands with The LINK Fund to work towards tribal development. A MoU was exchanged for a project titled **"Sustainable Livelihoods for Tribal Households in India".**

Details

- LINK Fund is a **philanthropic operational foundation**, which is mandated to eradicate **extreme poverty** and mitigate the effects of climate change.
- The LINK Fund (TLS) is a practitioner-led fund headquartered in **Geneva, Switzerland.**

Forensic Audits

Context

- Markets regulator SEBI is looking to appoint auditors for conducting forensic audits of financial statements of listed companies as part of efforts to curb frauds.
- SEBI asked listed firms to disclose about the initiation of forensic audits to stock exchanges to address gaps in the availability of information.

About forensic audits

- A forensic audit is an **analysis and review of the financial records** of a company or person to extract facts, which can be **used in a court of law.**
- Forensic auditing is a speciality in the accounting industry, and most major accounting firms have a **department of forensic auditing**.

Currency swap

Context

- Bangladesh's central bank has approved a $200 million currency swap facility to Sri Lanka.

Background

- The Reserve Bank of India extended a $400 million credit swap facility to Sri Lanka, which the Central Bank of Sri Lanka settled in February.
- RBI has a framework under which it can offer credit swap facilities to SAARC countries within an overall corpus of $2 billion.

About Currency Swap

- A currency swap is a transaction in which **two parties exchange an equivalent amount** of money with each other but in different currencies.

- The parties are essentially **loaning each other money** and will **repay the amounts** at a specified date and exchange rate.
- **Purpose:** To hedge exposure to exchange-rate risk, to speculate on the direction of a currency, or to reduce the cost of borrowing in a foreign currency.
- The parties involved in currency swaps are usually financial institutions, trading on their own or on behalf of a non-financial corporation.

Swap Pros	Swap Cons
Client is fully hedged against foreign exchange risks in terms of both principal and coupons as the swap locks in current market rate	Liability risk as well as interest rate risk i.e. swap payments are due when floating rate on the payment leg is higher than that the receiving leg
No upfront cost	Highly credit intensive
Swap arrangements reduce or eliminate convertibility risk and transfer risk	Swap arrangements expose users to interest rate risk and credit risk

Pension Scheme

Context

- The Pension Fund Regulatory and Development Authority (PFRDA) announced crossing the milestone of Rs 6 lakh crore (Rs 6 trillion) of Assets Under Management (AUM) under the National Pension System (NPS) and Atal Pension Yojana (APY), after 13 years.

National Pension Scheme (NPS)

- **Aim:** It encourages people to invest in a pension account at regular intervals during the course of their employment.
- **Eligibility:**
  - This pension programme is open to employees from the public, private and even the unorganised sectors except those from the armed forces.
  - Earlier, the NPS scheme covered only the Central Government employees. Now, however, the PFRDA has made it **open to all Indian citizens on a voluntary basis**.
- After retirement, the subscribers can take out a certain percentage of the corpus. As an NPS account holder, one will receive the remaining amount as a monthly pension post retirement.
- The scheme is portable across jobs and locations, with tax benefits under Section 80C and Section 80CCD.

Atal Pension Yojana

- **Aim:** To ensure that no Indian citizen has to worry about any illness, accidents or diseases in old age, giving a sense of security.
- **Focus Group:**
  - It is a pension scheme mainly aimed at the unorganized sector such as maids, gardeners, delivery boys, etc.
  - Private sector employees or employees working with such an organization that does not provide them pension benefits can also apply for the scheme.
- **Replaced:** This scheme replaced the previous Swavalamban Yojana, which wasn't accepted well by the people.
- **Pension Amount:**
  - There is an option of getting a fixed pension of Rs 1000, Rs 2000, Rs 3000, Rs 4000, or Rs 5000 on attaining an age of 60.
  - The pension will be determined based on the individual's age and the contribution amount.
  - The contributor's spouse can claim the pension upon the contributor's death.

About PFRDA:

- It is the **statutory authority** established by an enactment of the Parliament.
- **Aim:**
  - Overall supervision and regulation of pension in India.
  - To regulate, promote and ensure orderly growth of the National Pension System (NPS) and pension schemes to which this Act applies.
- Headquarters: New Delhi
- Jurisdiction: under Ministry of Finance

International Financial Services Centres Authority

Context

- It has been established as a unified regulator to develop and regulate financial products, financial services and financial institutions in the International Financial Service Centres (IFSCs) in India.

About the International Financial Services Centres Authority (IFSCA)

- It is a statutory body, which has been established under the International Financial Services Centres Authority Act, 2019.
- It is headquartered at GIFT City, Gandhinagar in Gujarat.

Role of IFSCA

- It is a unified authority for the development and regulation of financial products, financial services and financial institutions in the International Financial Services Centre (IFSC) in India.
- GIFT IFSC is the **maiden international financial services centre** in India.
- Prior to the establishment of IFSCA, the domestic financial regulators, namely, **RBI, SEBI, PFRDA and IRDAI** regulated the business in IFSC.

Nilesh Shah Expert Committee on Investment Funds

- It has been constituted to holistically **review the Global best practices** and make **recommendations to IFSCA** on the roadmap for the industry.
- It will recommend IFSCA on **long term vision for operations** of Investment Funds in IFSC.
- It will identify issues that may be **critical for development of the Investment Funds** industry at IFSCs including inter-regulatory issues.

National Company Law Tribunal

Context

- The NCLT has ordered liquidation of Devas Multimedia Pvt Ltd.

About NCLT

- It is a quasi-judicial body in India that adjudicates issues relating to Indian companies.
- The tribunal was established under the Companies Act 2013 based on the recommendation of the Balakrishna Eradi committee on law relating to the insolvency and the winding up of companies.
- Composition: The NCLT bench is chaired by a Judicial member who is supposed to be a retired or a serving High Court Judge and a Technical member who must be from the Indian Corporate Law Service, ICLS Cadre.
- Role and responsibilities of NCLT:
  - All proceedings under the Companies Act, including proceedings relating to **arbitration, compromise, arrangements, reconstructions and the winding up of companies** are disposed of by the National Company Law Tribunal.
  - It is the adjudicating authority for the insolvency resolution process of companies and limited liability partnerships under the **Insolvency and Bankruptcy Code, 2016.**
- Appeals:

- Decisions of the tribunal may be **appealed to the National Company Law Appellate Tribunal**, the decisions of which may further be appealed to the **Supreme Court of India** on a point of law.

MCA21 Version 3.0

Context

- First phase of the Ministry of Corporate Affairs' (MCA) MCA21 Version 3.0 (V3.0) comprising revamped website, new email services for MCA Officers and two new modules, namely, e. Book and e. Consultation was launched.

MCA21 application offers the following Benefits

- Enables the business community to register a company and file statutory documents quickly and easily.
- Provides easy access of public documents
- Helps faster and effective resolution of public grievances
- Helps registration and verification of charges easily
- Ensures proactive and effective compliance with relevant laws and corporate governance
- Enables the MCA employees to deliver best of breed services

Key components of MCA21 3.0

- **e-Scrutiny:** To scrutinise certain Straight Through Process (STP) Forms filed by the corporates on the MCA21 registry and flag the companies for more in depth scrutiny.
- **e-adjudication:** To manage the increased volume of adjudication proceedings and to provide end to end adjudication electronically.
- **e-Consultation:** To automate and enhance the current process of public consultation on proposed amendments and draft rules etc.
- **Compliance Management System (CMS)**: To assist MCA in identifying non-compliant companies/LLPs.
- **MCA Lab:** To evaluate the effectiveness of Compliance Management System, e-consultation module, enforcement module, etc. and suggest enhancements to the same on an on-going basis.

SCIENCE & TECHNOLOGY

Ivermectin

Context

- The union health ministry has recommended usage of the drug- Ivermectin for COVID-19 treatment.

About

- Ivermectin is an **antiparasitic drug** that is used to treat several neglected tropical diseases, including **onchocerciasis, helminthiases, and scabies.**
- It is also being evaluated for its potential to reduce the rate of malaria transmission by killing mosquitoes that feed on treated humans and livestock.
- It is now being used as a prophylaxis (preventive medication) to treat COVID-19.
- **Note**: The drug was not mentioned in the Union health ministry's medical guidelines in 2020.

Zeolite

Context

- Recently, DRDO placed an order with Air India to bring Zeolite from all over the world.
- Purpose: To meet the demand of oxygen supply in the country amidst the COVID-19 pandemic.

About

- Zeolites are **microporous, aluminosilicate minerals** commonly used as commercial adsorbents and catalysts.
- Zeolites have a porous structure that can accommodate a wide variety of cations, such as Na+, K+, Ca2+, Mg2
- Zeolites **occur naturally** but are also produced industrially on a large scale.
- Natural zeolites form where volcanic rocks and ash layers react with alkaline groundwater.
- **Note :** Natural Zeolites are non-porous but synthetic ones are highly porous..

Uses

- In the Medical Oxygen Plant (MOP) technology.
- The porous structure of zeolites can be used to "sieve" molecules having certain dimensions and allow them to enter the pores. **Hence, they are used for Gas Separation.**
- Used in the oxygen **concentration process** due to its outstanding nitrogen to oxygen **adsorption selectivity.**
- Catalysts for several important reactions involving organic molecules. The most important are **cracking, isomerisation and hydrocarbon synthesis.**
- Used in detergents and soaps, softening water.
- Nuclear-waste reprocessing methods
- **Clinoptilolite**(a naturally occurring zeolite) is used as a soil treatment in agriculture.

Uranium

Context

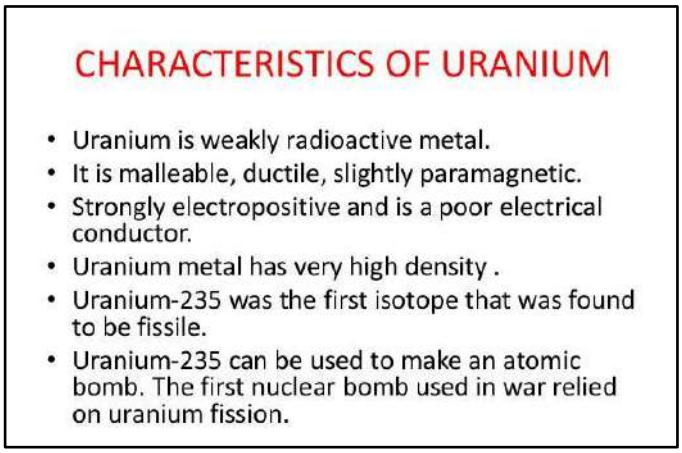
- The Maharashtra Anti-Terrorism Squad (ATS) arrested two persons with 7 kg natural uranium.

About

- Uranium occurs **naturally in low concentrations in soil, rock and water** and is commercially extracted from uranium-bearing minerals.

Uses

- In **nuclear power plants, Nuclear Fuel and Nuclear Submarines.**
- As **shield against radiation in medical processes** using **radiation therapy**
- While transporting radioactive materials
- Uranium's high density makes it effective in halting radiation.
- Its high density also makes it useful as **counterweights in aircraft and industrial machinery.**
- Provides **4 % of world renewable energy.**
- Ammunition, military weaponry
- Atomic Bombs
- Target for X-Ray production
- To color glass and silverware


CHARACTERISTICS OF URANIUM
• Uranium is weakly radioactive metal.
• It is malleable, ductile, slightly paramagnetic.
• Strongly electropositive and is a poor electrical conductor.
• Uranium metal has very high density .
• Uranium-235 was the first isotope that was found to be fissile.
• Uranium-235 can be used to make an atomic bomb. The first nuclear bomb used in war relied on uranium fission.

Black Fungus

Context

- A rare but serious **fungal infection, known as mucormycosis** also known as **"black fungus",** is being detected relatively frequently among Covid-19 patients in some states.

Cause

- It is caused by a group of fungal moulds known as **mucormycetes present naturally in the environment**. Example: in soil and in decaying organic matter like rotting leaves.
- It mainly affects people who are on medication for health problems like Diabetes.
- People get affected after they **inhale fungal spores from the air.**
- **"Mucormycosis" and "zygomycosis"** are used interchangeably.

Characteristic

- The disease is often characterized by hyphae growing in and around blood vessels.
  - ✓ **Hyphae:** each of the branching filaments that make up the mycelium of a fungus.

Treatment

- While it is treated with antifungals, mucormycosis may eventually require surgery.

National Technology Day

Context

- Recently, National Technology Day was celebrated

About

- **Aim:** to commemorate the achievements of scientists, researchers, engineers and all others involved in the field of science and technology.
- First observed on May 11, 1999.
- **The date:** On 11 May 1998, India successfully conducted three nuclear tests at Indian Army's Pokhran Test Range in Rajasthan. The tests were conducted **under operation Shakti**.
- The Pokhran tests were India's second instance of nuclear testing after the first test, code-named **"Smiling Buddha", in 1974.**
- On 11th May 1998, India also tested **its first indigenous aircraft Hansa-3**. It was a light two-seater aircraft built to serve surveillance, pilot training, and other reconnaissance purposes.
- The day, 11th May, also saw the successful completion **of test firing of India's surface-to-air missile Trishul.**
- **2021 Theme:** The theme of the National Technology Day 2021 is **"Science and Technology for a Sustainable Future".**

2-deoxy-D-glucose (2-DG)

Context

- DRDO's new Anti-Covid oral drug, 2-deoxy-D-glucose (2-DG), was recently granted emergency use approval by the Drug Controller General of India (DCGI) as an adjunct therapy in moderate cases of COVID-19.

About

- The drug is in powder form and is ingested orally by dissolving it in water.
- The 2-DG drug is expected to help hospitalised COVID-19 patients and reduce their supplemental oxygen dependence.

Mechanism

- The 2 DG drug, like glucose, spreads through the body, reaches the virus-infected cells and prevents virus growth by stopping viral synthesis and destroys the protein's energy production.
- Its **selective accumulation in virally infected cells** makes this drug unique.
- The drug also works on virus infection spread into lungs which help us to decrease patients dependability on oxygen.

Lumpy Skin Disease

Context

- Bihar government issued an advisory about the likely spread of lumpy skin disease (LSD).

About

- Lumpy skin disease (LSD) is an infectious disease in cattle caused by a virus of the family Poxviridae, (**capripox virus)** also known **as Neethling virus.**

Characteristics

- Enlarged superficial lymph nodes and multiple nodules on the skin and mucous membranes.

Impact

- Permanent damage to their skin, chronic debility, reduced milk production, poor growth, infertility, abortion, and sometimes death.

Transmission

- Through arthropod vectors, direct contact, contaminated feed and water and repeated use of needles on different animals can all spread the disease.

Control

- **Vaccination,** control of animal movements and culling infected animals.

Sputnik Light

Context

- Russia has authorised the one-shot Sputnik Light version of its Covid-19 vaccine for use.

About

- Sputnik V is a two-dose vaccine made from recombinant adenovirus 26 (Ad26) and adenovirus 5 (Ad5) (Common cold-causing viruses).
- The first dose (Ad26) is the prime vaccine and the second (Ad5) is the booster shot.
- The Sputnik Light vaccine is made from Ad26, which is the first part of the Sputnik V vaccine.
- Twenty-eight days after vaccination, the Sputnik Light vaccine was **79.4 percent effective against the virus.**

AYUSH 64 and KabasuraKudineer

Context

- The Ayush ministry has launched a massive nationwide campaign to distribute its proven poly herbal ayurvedic drug **AYUSH 64** and Sidha medicine KabasuraKudineer for the benefit of Covid patients in home isolation.

About

- 'AYUSH 64' is a **poly herbal formulation** that has been found useful in the treatment of asymptomatic, mild and moderate COVID-19 infection.
- Kabasurakudineer is a**herbal concoction, comprising dry ingredients of ginger, pippali, clove, cirukancori root, mulli root, kadukkai, ajwain and many other herbs.**

R21/Matrix-M vaccine

Context

- A malaria vaccine candidate tested on children in West Africa has shown an efficacy of around 77 per cent.

About

- The R21/Matrix-M vaccine is developed by **Burkina Faso** and their partners at the University of Oxford in the UK.
- It is the first malaria vaccine to reach the **75 per cent efficacy target set by the WHO.**

B.1.617 lineage

Context

- Health authorities in the UK have said that two variants from the B.1.617 lineage or the so-called Indian variant of the SARS-CoV-2 virus have been identified and are being monitored.

About

- The B.1.617 variant of the virus has two mutations, referred to as **E484Q and L452R.**
- Both are separately found in many other coronavirus variants, but they have been reported together for the first time in India.

Note: To know about mutation and Variants Visit:https://www.iasgyan.in/blogs/bengal-strain-all-about-mutation

EBOLA

Context

- Recently, Democratic Republic of the Congo (DRC) declared the end of the 12th Ebola outbreak.

About

- Ebola **virus disease** is a fatal illness **affecting humans and other primates.**
- It was first discovered in 1976 near the Ebola River (Democratic Republic of Congo).
- The virus is **transmitted to people from wild animals** (such as fruit bats, porcupines and non-human primates).
- It then spreads in the human population through direct contact with the blood, secretions, organs or other bodily fluids of infected people.
- **Symptoms:** Fever, Aches and pains, Loss of appetite, abdominal pain, diarrhea, and vomiting.
- **Eventually:** Damages the immune system and organs, uncontrollable bleeding and death.

- There's no cure for Ebola. **Vaccine: not available**. **Investigational vaccine**: rVSV-ZEBOV
- **Treatment:** Fluids and electrolytes, Oxygen, Blood transfusions etc

Yaogan satellites

Context

- China launched the eighth group of three Yaogan-30 satellites into orbit on a Long March 2C rocket.

About

- Yaogan satellites are a series of reconnaissance satellites launched by China.
- The first Yaogan 1 satellite was launched in 2006.
- Yaogan satellites are **optical remote sensing satellites**.
- **Uses:** disaster prevention and reduction, surveying land resources, road network design, urban planning, and crop yield estimation, electromagnetic environment surveys, and related technical tests.
- Yaogan-30 satellites would be used for **electromagnetic environment surveys and other related technical tests.**
- A small satellite for the Internet of Things (IoT) called **Tianqi-12 satellite** was also aboard the flight. It would serve the purpose of data connectivity to China.

White Fungus and Yellow Fungus

Context

- Cases of White Fungus and Yellow Fungus have been found in some parts of India.
- White, Black and Yellow Fungus are misnomers. They all are caused by a group of Mucormycetes.

Candidiasis/White Fungus

- Candidiasis is a fungal infection due to any type of **Candida (a type of yeast) - mucormycetes**
- Candida normally lives on the skin and inside the body, in places such as the mouth, throat, gut, and vagina, without causing any problems.
- Candida can cause infections if it grows out of control or if it enters deep into the body (for example, the bloodstream or internal organs like the kidney, heart, or brain).
- Signs and symptoms include white patches on tongue, mouth and throat, soreness, fever etc.
- COVID-19 patients are more prone to white fungus as it affects the lungs. Children and women are more at risk.
- Those who have **weak immunity** like diabetes, cancer patients, are more **at risk.**
- Unsanitary use of oxygen cylinders or the overuse of steroids can heighten the risk of contracting white fungus.
- Using tap water in the humidifier attached to an oxygen cylinder could be a major contributor.
- Patients of white fungus show Covid-like symptoms but test negative; the infection can be diagnosed through CT-Scan or X-ray.

Yellow Fungus

- It is different from black fungus and white fungus infections in **just** its manner of spreading.
- **Spreads:** when a person inhales moulds that are found in the environment, contaminated food, Unsanitary conditions, poor hygiene. Yellow fungus isn't contagious, hence, it cannot spread from person to person.
- **Symptoms:** weight loss, lethargy, and loss of appetite or no appetite, formation and leakage of pus and sunken eyes.
- Yellow fungus is **more dangerous as compared to other fungal infections because it spreads internally** and causes more internal damage.
- Treatment: **Amphotericin-B** injection.

PIMS-TS

Context

- Recently, a study looked at cases of 'Paediatric Inflammatory Multisystem Syndrome: Temporally Associated with SARS-CoV-2 (PIMS-TS)' in children.

About

- PIMS-TS, also known as multisystem inflammatory syndrome in children (MIS-C), is a rare condition associated with SARS-CoV-2 infection.
- In this, different body parts can become inflamed, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs.
- Symptoms include: (gut) pain, vomiting, diarrhea, neck pain, rash, bloodshot eyes, or feeling extra tired.
- **What causes MIS-C is not yet known.**
- It is thought to be a rare immune overreaction that occurs approximately four to six weeks after mild or asymptomatic SARS-CoV-2 infection.

Unicorn

Context

- Scientists have discovered the smallest-known black hole in the Milky Way galaxy and nicknamed it 'the Unicorn.'

About

- 'The Unicorn' falls into a "mass gap" between the largest-known neutron stars.
- The black hole is roughly three times the mass of our sun.
- Luminous red giant star orbits with the black hole in a so-called binary star system named V723 Mon.
- V723 Mon is in the **Monoceros constellation** — which translates to unicorn.
- The black hole is located about 1,500 light years.
- By way of comparison, the closest star to our solar system, Proxima Centauri, is 4 light years away.

Read about Black holes in Detail in October 2020 Edition:https://www.iasgyan.in/ias-gazette-magazine/the-ias-gazette-october-2020

Read about Dark Matter in March 2021 edition:https://www.iasgyan.in/ias-gazette-magazine/the-ias-gazette-march-2020

AmbiTag

Context

- IIT Punjab has developed a first-of-its-kind IoT device – AmbiTag.

About

- It records real-time ambient temperature during the transportation of perishable products, vaccines and even body organs and blood.
- That recorded temperature further helps to know whether that particular item transported from anywhere in the world is still usable or perished because of temperature variation.
- This information is particularly critical for vaccines including Covid-19 vaccine, organs and blood transportation.
- Shaped as a USB device, AmbiTag continuously records the temperature of its immediate surroundings from -40 to +80 degrees in any time zone for a full 90 days on a single charge.
- The device generates an alert when the temperature goes beyond a pre-set limit.
- It can also monitor the temperature of animal semen during transit.

Monoclonal Antibodies Cocktail

Context

- Two private hospitals in Chennai have launched 'monoclonal antibodies cocktail' therapy for Covid-19 patients.

Antibody

- Antibodies are proteins that the body generates to defend itself against any disease.
- Monoclonal antibodies are **artificially created in a laboratory** and tailor-made to fight a particular disease.

The cocktail

- The antibody cocktail drug is a combination of **casirivimab and Imdevimab**, two lab-engineered antibodies.
- These are specifically **directed against the spike protein of SARS-CoV-2.**
- They block the virus's attachment and subsequent entry into human cells.

- Using two antibodies protects against the body's resistance to them.
- When given to patients with mild symptoms in **an early stage of Covid-19 (within the first ten days of symptom onset)**, it helps reduce the multiplication of the coronavirus.
- **Note:** It is **not useful for people** in ICU or on ventilators.
- The drug is administered either through the intravenous or subcutaneous (under the skin) route, through an infusion or injection, and becomes **active soon after entering the body.**
- Children above the age of 12 years, with mild symptoms, can also be given the drug.
- The therapy is said to reduce the chance of hospitalisation by 70 per cent in patients with mild to moderate Covid-19 symptoms.
- The therapy has been cleared by the Drugs Controller General of India (DCGI).

Emergency Use Listing (EUL)

Context

- Bharat Biotech International is about to apply for an emergency-use listing (EUL) for its covid vaccine, Covaxin.

About

- The EUAL is a risk-based procedure for assessing and listing unlicensed vaccines, therapeutics and in vitro diagnostics (IVDs) for use primarily **during public health emergencies of international concern (PHEIC**) but also in other public health emergencies if appropriate.
- The World Health Organization (WHO) developed the Emergency Use Assessment and Listing (EUAL) mechanism in response to the 2014 – 2016 Ebola Virus Disease (EVD) outbreak.
- WHO's**cutoff for efficacy of covid-19 vaccines is 50%.** WHO EUL will make those inoculated with Covaxin eligible to enter regions such as the European Union.

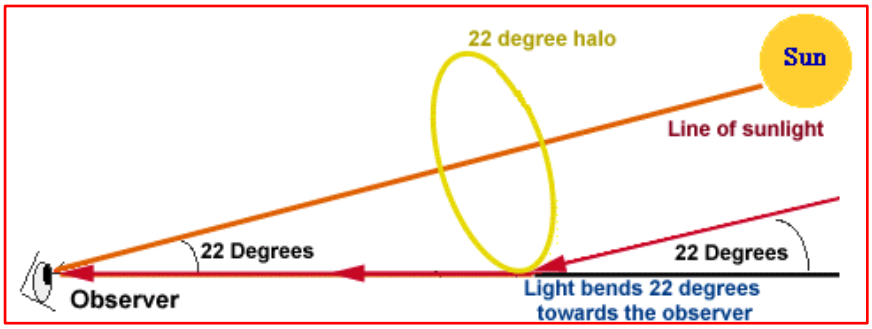
Sun Halo Phenomenon

Context

- Recently, people in Bengaluru witnessed a bright rainbow ring around the sun or Sun Halo.

Halo

- A halo is a ring of light surrounding the sun or moon.
- Halos form when light from the sun or moon is refracted by ice crystals associated with thin, high-level clouds (like cirrostratus clouds).
- Light undergoes two refractions as it passes through an ice crystal and the amount of bending that occurs depends upon the ice crystal's diameter.



22 Degree Circular Halo

- It is a rare optical and atmospheric phenomenon called **'22 degree circular halo'.**
- A 22 degree halo develops when light enters one side of a columnar ice crystal and exits through another side.
- The light is refracted when it enters the ice crystal and once again when it leaves the ice crystal.
- The two refractions bend the light by 22 degrees from its original direction, producing a ring of light observed at 22 degrees from the sun or moon.

WHO BioHub System

Context

- The World Health Organization (WHO) and the Swiss Confederation signed a Memorandum of Understanding to launch the first WHO BioHub Facility as part of the WHO BioHub System, which was announced in November 2020.

About

- Based in Spiez, Switzerland, the facility will serve as a centre for the safe receipt, sequencing, storage and preparation of biological materials for distribution to other laboratories
- This is to inform risk assessments, and sustain global preparedness against these pathogens.
- Currently, most pathogen sharing is done bilaterally between countries and on an ad hoc basis which can be slow, and leave some countries without access to the benefits and tools.
- The BioHub will enable Member States to share biological materials with and via the BioHub under pre-agreed conditions, including biosafety, biosecurity, and other applicable regulations.
- This will ensure timeliness and predictability in response activities.

Vaccine Tourism

- A draft flyer of a 23-night 'vaccine tourism package' from Delhi to Moscow was leaked on social media.

About

- Vaccine tourism means visiting another country or state to get a vaccine not available to you at home.
- It is **not illegal** to travel to a foreign country to get vaccinated if air travel is allowed.
- **Note:** Vaccine Tourism is different from Vaccine passport.
- A 'Vaccine Passport' is a record or health data certificate that would carry information about whether a person has been inoculated or has tested negative for Covid-19.
- The information would be accessible electromagnetically, on mobile apps, or as printed documents or cards.

Coviself

Context

- Recently, ICMR approved the country's first Covid-19 self-testing kit for home use.

About

- Called CoviSelf, it has been developed by a Pune-based molecular company.
- It uses a rapid antigen test, in which a nasal swab sample is tested for the virus and gives **results within 15 minutes.**
- This testing kit cost Rs 250, while RT-PCR test costs between Rs 400 to Rs 1,500.
- Coviselfis an AI-powered mobile app so that a user can know his/her positive status, submit the result to ICMR directly for traceability, and know what to do next in either result.
- If positive, the person will be considered Covid-19 positive and will not require RT-PCR as a confirmatory test.
- If a person tests negative but has symptoms, he or she has to undergo an RT-PCR test.

Significance

- These can cut queues in laboratories, reduce costs, dissipate the burden on existing manpower for sample collection from homes, and provide quick results (within 15 minutes), leading to prompt treatment and isolation.

Concern

- Reliability of results remains a major concern.
- The likelihood of the sample not being collected correctly, or the swab stick getting contaminated, is high.
- Also, rapid antigen tests come with a high chance of false negatives.
- If a Covid-infected person is asymptomatic and tests negative, the test may give a false sense of security. But by far the biggest concern is the difficulty in tracing positive patients.

Final Thoughts

- Self-tests can be effective if the patient follows isolation norms, feeds correct data and is able to interpret the results accurately.

NASA-ESA Solar orbiter (Solo)

Context

- NASA and European Space Agency's Sun-watching spacecraft has captured the first solar eruption.

Details

- The Solar Orbiter caught sight of coronal mass ejection, or CME.
- The CME was captured by NASA instrument, the Solar Orbiter Heliospheric Imager (SoloHI) onboard the spacecraft.
- SoloHI watches **the solar wind, dust, and cosmic rays that fill the space between the Sun and the planets.**
- Two more imagers on Solar Orbiter -- ESA's Extreme Ultraviolet Imager and Metis -- also captured views of the CME.
- NASA's STEREO-A spacecraft, short for Solar Terrestrial Relations Observatory, also caught a glimpse from its COR2 detector, which blocks out the Sun's bright disk to see otherwise faint phenomena in the solar wind.

Solar Orbiter

- The Solar Orbiter (SolO) is a Sun-observing satellite, developed by the European Space Agency (ESA). SolO is intended to
  - perform detailed measurements of the inner heliosphere and nascent solar wind, and
  - perform close observations of the polar regions of the Sun, which is difficult to do from Earth.

Both will serve answer to the question **"How does the Sun create and control the heliosphere?"**

SolO was launched on 10 February 2020.

CME

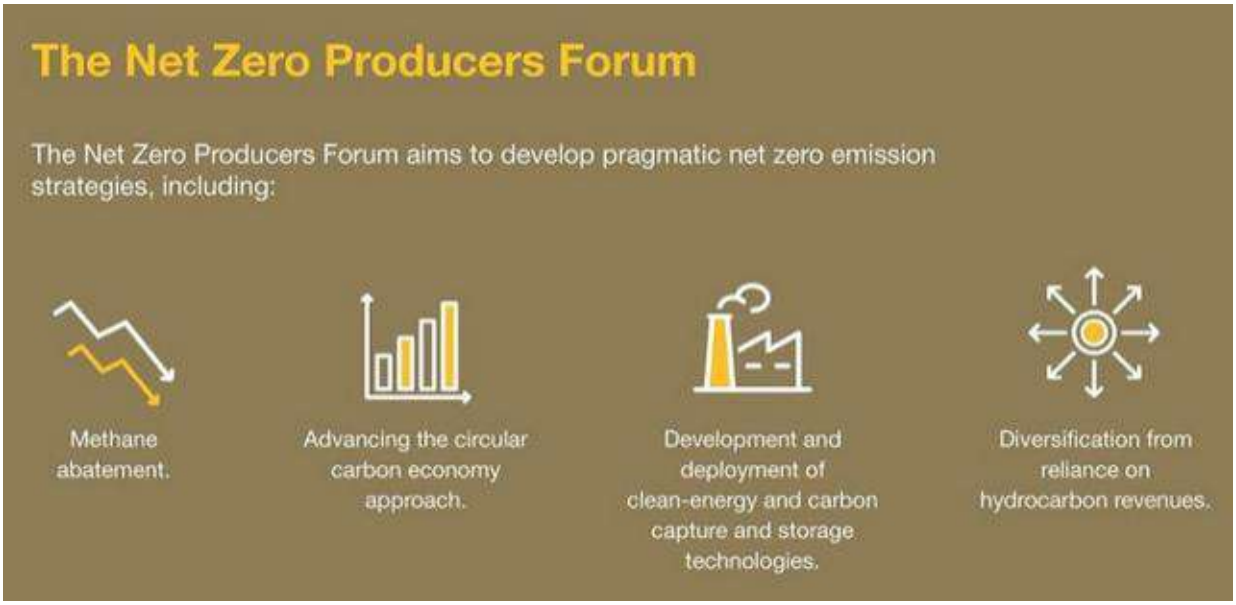
- A coronal mass ejection (CME) is a significant release of plasma and accompanying magnetic field from the solar corona. They often follow solar flares. The plasma is released into the solar wind.

ENVIRONMENT

Net Zero Producers Forum

Context

- **Saudi Arabia** joined the United States, Canada, Norway, and Qatar in forming 'Net Zero Producers Forum' for oil and gas producers to discuss how they can support the implementation of the Paris Agreement on climate change.
- Saudi Arabia, the **world's biggest crude exporter**, will be part of the new platform, which will discuss ways **to achieve net zero carbon emission targets to limit global warming.**
- In the past, Saudi Arabia's **aims to reduce its carbon emissions by generating 50% of the country's energy from renewables by 2030.**


The Net Zero Producers Forum
The Net Zero Producers Forum aims to develop pragmatic net zero emission strategies, including:
Methane abatement.
Advancing the circular carbon economy approach.
Development and deployment of clean-energy and carbon capture and storage technologies.
Diversification from reliance on hydrocarbon revenues.

Sauropods

Context

- Researchers have identified fossil bone fragments of **long-necked dinosaurs called sauropods**, dating back to about 100-million-years from an area around **West Khasi Hills District in Meghalaya.**

More about news

- The finding **makes Meghalaya the fifth state in India after Gujarat, Madhya Pradesh, Maharashtra, and Tamil Nadu** to report Sauropod bones having titanosaurian affinity.
- The researchers noted that this is the first record of sauropods of probable Titanosaurian origin discovered in the region.

About Sauropods

- Sauropods had **very long necks, long tails, small heads relative to the rest of their body, and four thick, pillar-like legs.**
- They are notable for the enormous sizes attained by some species, and the group includes the largest animals to have ever lived on land.
- Titanosaurs were a diverse group of sauropod dinosaurs, including genera from Africa, Asia, South America, North America, Europe, Australia and Antarctica.
- **Titanosaurian** sauropod dinosaurs were the most diverse and abundant large-bodied **terrestrial herbivores in the Southern Hemisphere** landmasses during the Cretaceous Period but they were not endemic to the Gondwanan landmasses.
    - **Gondwana** is the southern half of the Pangaean supercontinent that existed some 300 million years ago and is composed of the major continental blocks of South America, Africa, Arabia, Madagascar, Sri Lanka, India, Antarctica, and Australia.
- In India, the Late Cretaceous sauropod dinosaur generally belong to the titanosaurian clade and has been reported from the **Lameta Formation of Gujarat, Madhya Pradesh and Maharashtra and Kallamedu Formation of Tamil Nadu.**

Xylophis Deepaki

Context

- Herpetologist Deepak Veerappan has a snake named after him

Xylophis deepaki

- It is a **tiny snake of just 20 cm** length with iridescent scales.
- It is reported to be an **endemic species of Tamil Nadu** and has been sighted in a few locations in the southern part of the Western Ghats.
- The species is named in honour of Indian herpetologist Deepak Veerappan for his contribution in erecting a new subfamily Xylophiinae to accommodate **wood snakes**.
- This new species is found in the **drier regions** and in lower altitudes **around Agasthyamalai hills.**

About Wood snakes

- Wood snakes are **harmless, sub-fossorial** and often found while digging soil in farms and under the logs in the Western Ghat forests.
- They **feed on earthworms** and possibly other invertebrates.

Bio-batteries

Context

- This woman-run startup Nexus Power uses crop residue to create **bio-batteries, fast-charging batteries for electric vehicles.**

- Some of the main concerns associated with the EV sectors were **long charging time, high prices, and a paucity of local sources to procure lithium**, and **toxicity**.
- According to a report by the Council on Energy, Environment and Water (CEEW) 2020, a total of 5,30,560 EVs (two-wheelers, three-wheelers, cars, and buses) were sold in India.

Biodegradable batteries

- The biodegradable batteries are fashioned from crop residue.
- A cell consists of three structural elements – the cathode, anode and electrolyte.
- The process of manufacturing plays with the chemistry of the cell and builds all these elements with nanodot proteins derived from crop residue.
- The batteries **charge eight to 10 times faster than conventional ones and last 20% to 30% longer.**
- Most importantly, once the batteries die, they **can be recycled at no extra cost, which is not the case with the regular EV offerings.**
- Made out of bio-degradable material, the cells **rule out toxicity hazards** and using crop residue ensures that some of it is not burnt, which in turn protects from deterioraton of air quality. So **entire process is energy efficient and sustainable**.
- These batteries are **lithium ion-free**.
- The materials used at Nexus are derived from **natural compounds**, which are either underutilised or wasted by other industries.
- Procurement of crop waste helps the farmers in earning an additional income of ₹25,000 for every 100 batteries. The manufacturing process has been designed to ensure no element of the environment is exploited.
- The production of these batteries creates **bio-fertiliser as by-products**, which get returned to the market to facilitate a favourable agricultural yield.

Anamalai Tiger Reserve

Context

- Residents of two tribal settlements within the limits of the Anamalai Tiger Reserve (ATR), were gearing up for the annual festival of their local deity, Vairapattan.
- The Kattupatti and Kuzhipatti settlements of Pulayar community have barely heard of the acronym COVID-19.

Anamalai Tiger Reserve

- Aanaimalai Tiger Reserve, earlier known as **Indira Gandhi Wildlife Sanctuary and National Park** (IGWLS&NP) and previously as Aanaimalai Wildlife Sanctuary, is a protected area located in the **Anaimalai Hills of Tamil Nadu, India**.
- The IGWS has significant anthropological diversity with more than 4600 Adivasi people from six tribes of indigenous people living in 34 settlements.
- The tribes are the **Kadars, Malasars, Malaimalasar s, Pulaiyars, Muduvars and the Eravallan (Eravalar).**
- **It lies South of the Palakkad gap in the Southern Western Ghats.**
- The Anamalai Tiger Reserve falls within the Western Ghats mountain chain of South West India, **a region designated as one of 25 Global Biodiversity Hotspots.**

Crocidura narcondamica

Context

- Scientists from the Zoological Survey of India (ZSI) have discovered a new species of insectivorous mammal, a white-toothed shrew, from Narcondam Island of the Andaman and Nicobar group of islands.

About Crocidura narcondamica

- It is an **insectivorous mammal**, found in the volcanic and uninhabited island.
- **Shrews are small and mouse-like mammals, and they live in sub-leaf stratum in the forests**.
- **Insects are the primary diet** of these animals.

- This is the first discovery of a shrew from this volcanic island (Narcondam Island) and it increases the number of White-toothed shrew (genus Crocidura) species in India from 11to 12.
- The new species is of **medium size** (head and body lengths) and has a **distinct external morphology with darker grey dense fur with a thick, darker tail compared to other species of the genu**s.
- Craniodental characters of the species such as braincase was rounded and elevated with weak lambdoidal ridges makes the species distinct in comparison to other close congeners.

Narcondam island

- The discovery comes from one of most remote and uninhabited islands, Narcondam island, of the Andaman and Nicobar archipelago.
- Narcondam Island is located about 130 km east of North Andaman, and about 446 km of the west coast of Myanmar.

3rd Arctic Science Ministerial (ASM3) platform

Context

- India participated in the **3rd Arctic Science Ministerial (ASM3) - the global platform for discussing research and cooperation in the Arctic region.**

More details

- Union Minister of Science and Technology **shared India's vision and long-term plans for research, work, and cooperation in the Arctic region with the stakeholders.**
- India shared its plans to contribute observing systems in the Arctic, both in-situ and by remote sensing.
- The country would deploy **open ocean mooring in the Arctic for long-term monitoring of upper ocean variables and marine meteorological parameters.**
- The launch of **NISER (NASA-ISRO Synthetic Aperture Radar) satellite mission**, in collaboration with the USA, is underway.
- NISER aims **to conduct global measurements of the cause and consequences of land surface changes using advanced radar imaging. India's contributions to the Sustained Arctic Observational Network (SAON) would continue.**

ASM

- The first two meetings—**ASM1 and ASM2—were held in the USA in 2016 and Germany in 2018, respectively.**
- ASM3, jointly organised by **Iceland and Japan,** is the **first Ministerial meeting being held in Asia.**
- The meeting is designed
  - to provide opportunities to various stakeholders, including academia, indigenous communities, governments and policymakers,
  - to enhance collective understanding of the Arctic region, emphasize and engage in constant monitoring, and strengthen observations.
- The **theme for this year is 'Knowledge for a Sustainable Arctic'.**

Need

- **Arctic warming and its ice melt are global concerns** as they play a pivotal role in regulating climate, sea levels, and maintaining biodiversity.
- Moreover, there is growing **evidence of connection between the Arctic and the Indian Ocean (which modulates the Indian monsoon).**
- Hence, improving the understanding of physical processes and quantifying the impact of Arctic ice melt on the Indian summer monsoon is very important.

Arctic Council

- The Arctic Council is a **high-level intergovernmental forum to promote cooperation, coordination, and interaction towards sustainable development and environmental protection in the Arctic.**
- Since 2013, India enjoys **'Observer' status in the Arctic Council with twelve other countries (Japan, China, France, Germany, UK, Italy, Switzerland, Poland, Spain, Netherlands, Singapore, and South Korea).**
- As part of the Arctic Council, India contributes to the international deliberations to develop effective cooperative partnerships towards a safe, stable, and secure Arctic.
- India's engagement with the Arctic dates back to 1920 with the signing of the **Svalbard Treaty in Paris.**
- Since July 2008, India has a **permanent research station in the Arctic called Himadari at NyAlesund, Svalbard Area in Norway.**
- It has also deployed a **multi-sensor moored observatory** called **IndARC** in the Kongsfjorden fjord since July 2014.
- The research in the Arctic region from India is coordinated, conducted, and promoted by the National Centre for Polar and Ocean Research (NCPOR), Goa, under the Ministry of Earth Sciences, Government of India.

Red-eared slider

Context

- A 'cute' American turtle popular as a pet is threatening to invade the natural water bodies across the Northeast, home to 21 of the 29 vulnerable native Indian species of freshwater turtles and tortoises.

About red-eared turtle

- It is a favourite of pet lovers because of its **small size and color** and can even be kept in a matchbox.
- It **grows fast** and is considered as one **of the world's worst invasive species**.
- They are omnivores and require lots of aquatic plants.
- This species is native from the area around the **Mississippi river and the Gulf of Mexico**, they live in still and warm water bodies such as ponds, lakes, streams, and slow- running rivers.
- They pose a major **threat to native turtle specials**, as they grow large, produce more offspring, and are aggressive.
- They can also **transfer diseases and parasites to native reptiles**.
- In Australia and the European Union, it is illegal to import and keep these turtles.
- **The International Union for Conservation of Nature (IUCN)** lists red eared slider turtle as a species of '**least concern',** mainly due to their large numbers in wild and stable population.

Peat bog

Context

- A pair of cranes was spotted last year on a restored peat bog. The common crane is typically seen in Ireland during the winter, but is not sighted during the breeding season. Last year was the first time in over 300 years that they were spotted nesting in Ireland during this period.

What do we know about the cranes?

- Cranes stand at 4 feet tall with a wingspan of over 7 feet, and used to be the **largest birds in Ireland.**
- They are connected with the history and culture of the country, featuring in folklore tales and in the names of towns.
- Although they were once common, the destruction of their habitat saw them disappear around the 16th and 17th century.

Why is bog restoration important?

- Bogs are **soft, spongy wetlands that accumulate peat– a fossil fuel that is used for heating homes and businesses in northern Europe.**
- They are formed in northern climates, and take thousands of years to develop.

- Bogs also **act as carbon sinks**, sequestering around 200 million tons of carbon from the environment in Siberia and Scandinavia.

Chirixalus doriae- Rare foaming frog

Context

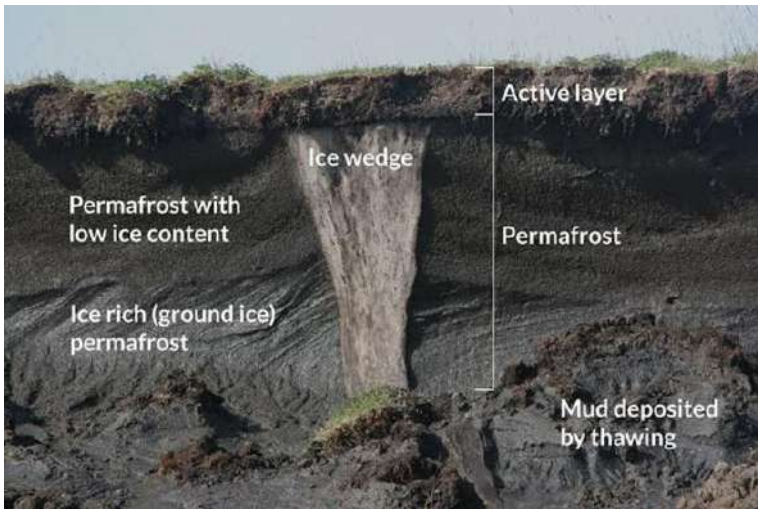
- A team of zoologists from Mizoram University's spotted Doria's foam-nesting treefrog during a nocturnal survey in the buffer area of **Mizoram's Pualreng Wildlife Sanctuary** in June 2020.
- A virtually unknown treefrog with known traits such as changing skin shade and whipping up foam to protect its eggs has resurfaced in India after 108 years.
- Doria's foam-nesting treefrog (Chirixalus doriae) **was first described in 1893** from Karin Bia-po in Myanmar and was later sighted in Thailand, Laos, Cambodia, Vietnam and Bangladesh.
- The natural history and distribution of Doria's foam-nesting treefrog, **last recorded in India in 1912** south of **Arunachal Pradesh's Tenga Valley, is virtually unknown.**
- Very little is known about the natural history and the distribution of this treefrog.
- **"Treefrogs can usually change their colour from lighter to darker or tan. This frog derives its name from the secretion of foam for covering the eggs the female lays. The foam guards the eggs against predators, direct sunlight and desiccation.**

Permafrost and Climate change

Context

- Arctic fires, thawing permafrost pose growing threat to climate: study.

Key highlights of study



- While more research is needed to measure the emissions coming from permafrost, the researchers estimate that **fires along with abrupt thawing events could increase carbon emissions up to 40% by the end of the century** unless fossil fuel emission are drastically reduced.
- The warming Arctic tundra will make it harder for the world to curb climate change, as **thawing permafrost and wildfires release greenhouse gases** that are not fully accounted for in global emissions agreements.
- That would **blow the global "emissions budget".** As temperatures rise and permafrost thaws, carbon dioxide and methane trapped within the long-frozen soil are released.
- That threatens to **create a feedback loop** that contributes to even more warming of the atmosphere.
- **Policymakers need to be pursuing deeper emissions cuts**.

About Permafrost

- Permafrost is a **permanently frozen layer** on or under Earth's surface.
- It consists of **soil, gravel, and sand, usually bound together by ice. Permafrost usually remains at or below 0°C (32°F) for** at least two years.
- Permafrost can be found on land and below the ocean floor.

Leopards

Context

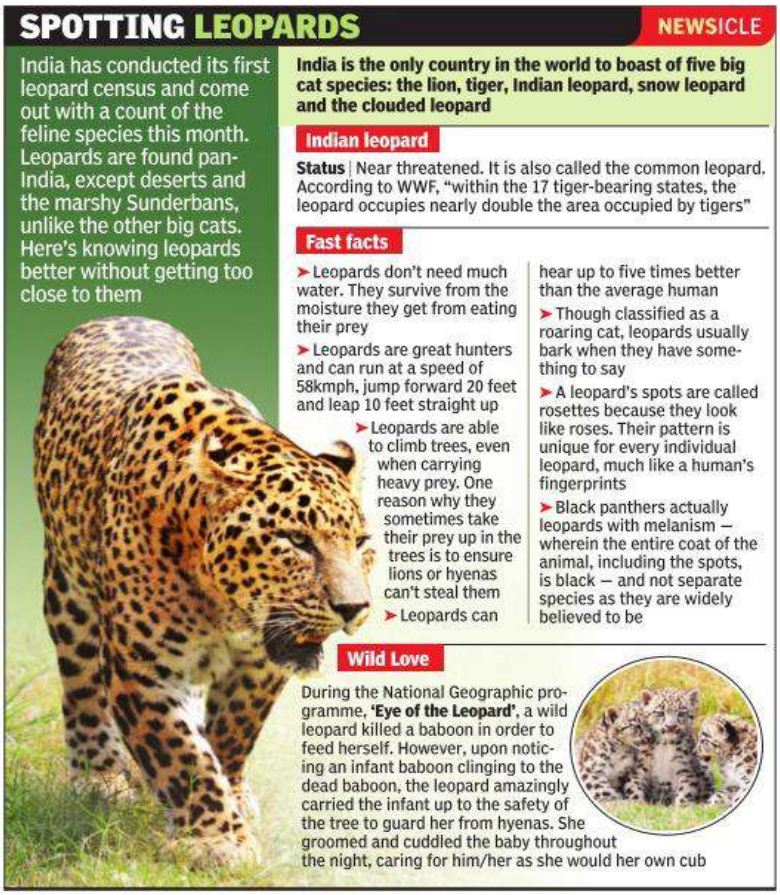
- Three leopards were found dead under suspicious conditions in Belawadi village limits on the outskirts of Mysuru.

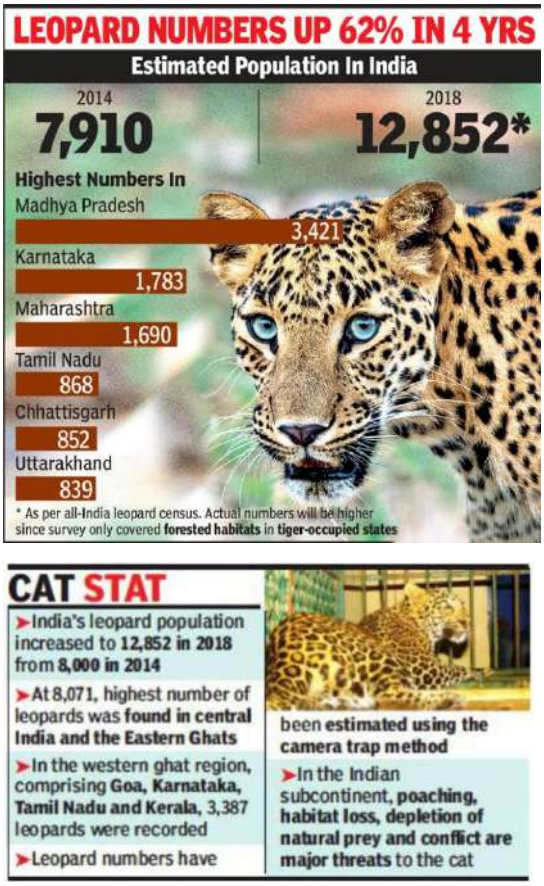
Status of leopards in India, 2018

- India's leopard population **increased by 60% in 4 years"**, since 2014.
- **Status of leopards in India, 2018,** mentions that the country has **12,852 leopards.**

About leopard

- **Main threats: Habitat loss due to mining and quarrying, poaching for body parts, mortality due to vehicular collisions, retaliatory killing due to human-leopard conflict and accidental deaths due to snares** set for catching wild prey.


SPOTTING LEOPARDS
NEWSICLE
India has conducted its first leopard census and come out with a count of the feline species this month. Leopards are found pan-India, except deserts and the marshy Sunderbans, unlike the other big cats. Here's knowing leopards better without getting too close to them
India is the only country in the world to boast of five big cat species: the lion, tiger, Indian leopard, snow leopard and the clouded leopard
Indian leopard
Status | Near threatened. It is also called the common leopard. According to WWF, "within the 17 tiger-bearing states, the leopard occupies nearly double the area occupied by tigers"
Fast facts
Leopards don't need much water. They survive from the moisture they get from eating their prey
Leopards are great hunters and can run at a speed of 58kmph, jump forward 20 feet and leap 10 feet straight up
Leopards are able to climb trees, even when carrying heavy prey. One reason why they sometimes take their prey up in the trees is to ensure lions or hyenas can't steal them
Leopards can hear up to five times better than the average human
Though classified as a roaring cat, leopards usually bark when they have something to say
A leopard's spots are called rosettes because they look like roses. Their pattern is unique for every individual leopard, much like a human's fingerprints
Black panthers actually leopards with melanism — wherein the entire coat of the animal, including the spots, is black — and not separate species as they are widely believed to be
Wild Love
During the National Geographic programme, 'Eye of the Leopard', a wild leopard killed a baboon in order to feed herself. However, upon noticing an infant baboon clinging to the dead baboon, the leopard amazingly carried the infant up to the safety of the tree to guard her from hyenas. She groomed and cuddled the baby throughout the night, caring for him/her as she would her own cub



CAT STAT
India's leopard population increased to 12,852 in 2018 from 8,000 in 2014
At 8,071, highest number of leopards was found in central India and the Eastern Ghats
In the western ghat region, comprising Goa, Karnataka, Tamil Nadu and Kerala, 3,387 leopards were recorded
Leopard numbers have been estimated using the camera trap method
In the Indian subcontinent, poaching, habitat loss, depletion of natural prey and conflict are major threats to the cat

Whiteflies

Context

- Approximately 1.35 lakh hectares of coconut and oil palm in India are affected by rugose spiralling whitefly. The first reported invasive spiralling whitefly is now distributed throughout India except Jammu & Kashmir
- Whitefly, are **reducing crop yield and wreaking havoc.**
- The **first invasive whitefly reported from Kerala in 1995** has now spread across the country.
- Extracted genomic DNA from individual adult whiteflies give details about eight invasive species found in India.
- Most of these species are **native to the Caribbean islands or Central America**
- It is possible that tourists may have brought the insect along with plants, which lead to the **accidental introduction of this invasive species**.

About Whiteflies

- Whiteflies are Hemipterans that typically **feed on the undersides of plant leaves.**
- **Agricultural threat**: In warm or tropical climates and especially in greenhouses, whiteflies present major problems in crop protection.

- They act as **most prominent disease vectors**.
- The whiteflies are **difficult to control by using synthetic insecticides**, and hence currently naturally occurring insect predators, parasitoids and entomopathogenic fungi (fungi that can kill insets) are being used.

National Mission on Biomass

Context

- Ministry of Power decides to set up a National Mission on use of Biomass in coal based thermal power plants. It will also contribute in the **National Clean Air Programme (NCAP).**

Need

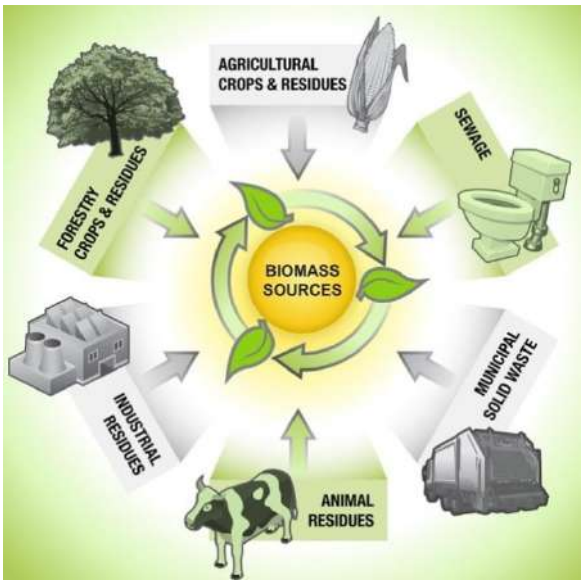
- In order to address the issue of air pollution due to farm stubble burning.
- To reduce carbon footprints of thermal power generation
- To support the energy transition in the country and our targets to move towards cleaner energy sources.

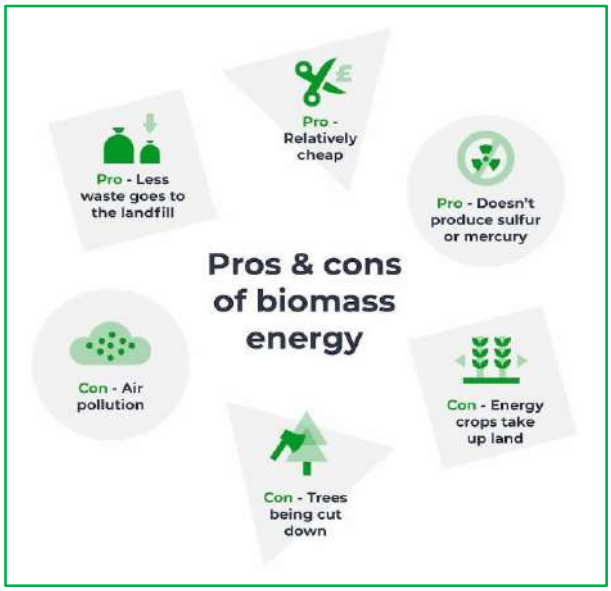
Objectives of this Mission

- To **increase the level of co-firing from present 5% to higher levels** to have a larger share of carbon neutral power generation from the thermal power plants.
- To **take up R&D activity in boiler design** to handle the higher amount of silica, alkalis in the biomass pellets.
- To **facilitate overcoming the constraints in supply chain of bio mass pellets and agro- residue and its transport** upto to the power plants.
- To **consider regulatory issues** in **biomass co-firing.**
- The duration of proposed National Mission would be a **minimum 5 years.**

Biomass is also used to produce

- **2G biofuels** that utilise surplus biomass and agricultural waste to produce Bioethanol.
- **Biogas** that is produced naturally through a process of anaerobic decomposition from waste/biomass sources like agriculture residue, cattle dung, sugarcane press mud, municipal solid waste, sewage treatment plant waste, etc.




Pro - Relatively cheap
Pro - Less waste goes to the landfill
Pro - Doesn't produce sulfur or mercury
Pros & cons of biomass energy
Con - Air pollution
Con - Energy crops take up land
Con - Trees being cut down

About National Clean Air Programme

- It was launched to **reduce particulate matter (PM) pollution by 20-30%** in at least 102 cities by 2024.
- It is envisaged as a scheme to **provide the States and the Centre with a framework to combat air pollution.**
- 102 cities from 23 States and UTs have been chosen as non-attainment cities. With the exception of Delhi, Mumbai, Kolkata and Bengaluru, most of those chosen are tier two cities.
- Apart from experts from the industry and academia, the programme is expected to be a collaboration between the Ministry of Road Transport and Highways, Ministry of Petroleum and Natural Gas, Ministry of New and Renewable Energy, Ministry of Heavy Industry, Ministry of Housing and Urban Affairs, Ministry of Agriculture, Ministry of Health, NITI Aayog, and Central Pollution Control Board.

Gharial

Context

- After almost 15 years, gharials mated in the Satkosia gorge and hatchlings were seen surrounding an adult gharial.

About gharials

- The male gharial has a distinctive boss at the end of the snout, which resembles an earthenware pot known in Hindias. Hence, the name.

Conservation Status

- Critically Endangered – IUCN Red List.
- It is a Schedule 1 species under Indian wildlife act, 1972

Habitat

- Foremost flowing rivers with high sand banks that they use for basking and building nests
- Gharials once inhabited all the major river systems of the Indian Subcontinent, from the Irrawaddy Riverin the east to the Indus River in the west.
- Their distribution is now limited to only 2% of their former range
- They are found in **Girwa River, Chambal River, Ken River, Son River, Mahanadi River, Ramganga River**

Threats

- Hunting for **skins, trophies and indigenous medicine** and their eggs collected for consumption.
- Decrease of riverine habitat as dams, barrages, irrigation canals and artificial embankments were built; siltation and sand-mining changed river courses

Conservation efforts in India

- Project Crocodile for intensive captive breeding and rearing program began in 1975 (Government of India+ United Nations Development Fund + Food and Agriculture Organization)

Protected areas for gharial in India

- National Chambal Sanctuary- Madhya Pradesh
- Katerniaghat Wildlife Sanctuary- Uttar Pradesh

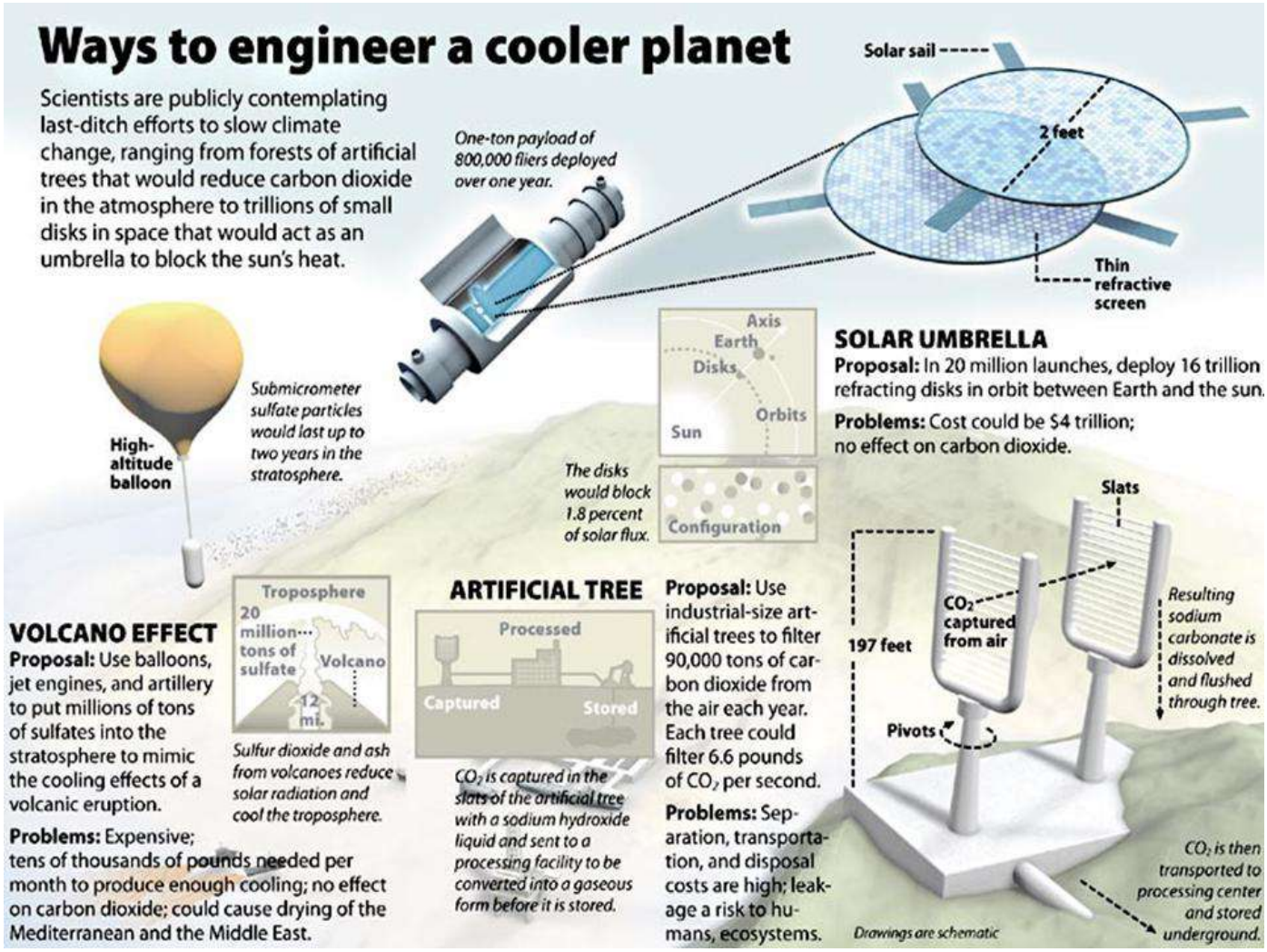
Climate engineering

Context

- Researchers at the Indian Institute of Technology (IIT), Guwahati have developed a smart window material for automatic climate control of buildings that would ultimately help in developing **efficient automatic climate control.**
- It can provide an **alternative solution for maintaining ambient indoor temperature and lighting inside a building or a vehicle.**
- It is designed using **noble metals** as well as their relatively inexpensive alternatives that can dynamically **control the intensity of transmitted solar radiation.**
- The emergent smart windows, on the other hand, can dynamically adjust the amount of light and heat radiation entering a building in response to external stimuli, thus conserving the building's energy.
- Design of smart windows are tuneable for all-weather conditions.

What is geoengineering?

- Climate engineering or climate intervention, commonly referred to as geoengineering, **is the deliberate and large-scale intervention in the Earth's climate system.**
- The most prominent subcategories of climate engineering are **solar radiation management and carbon dioxide removal.**


Ways to engineer a cooler planet
Scientists are publicly contemplating last-ditch efforts to slow climate change, ranging from forests of artificial trees that would reduce carbon dioxide in the atmosphere to trillions of small disks in space that would act as an umbrella to block the sun's heat.
One-ton payload of 800,000 fliers deployed over one year.
Solar sail
2 feet
Thin refractive screen
SOLAR UMBRELLA
Proposal: In 20 million launches, deploy 16 trillion refracting disks in orbit between Earth and the sun.
Problems: Cost could be $4 trillion; no effect on carbon dioxide.
Axis
Earth
Disks
Orbits
Sun
Configuration
The disks would block 1.8 percent of solar flux.
High-altitude balloon
Submicrometer sulfate particles would last up to two years in the stratosphere.
VOLCANO EFFECT
Proposal: Use balloons, jet engines, and artillery to put millions of tons of sulfates into the stratosphere to mimic the cooling effects of a volcanic eruption.
Problems: Expensive; tens of thousands of pounds needed per month to produce enough cooling; no effect on carbon dioxide; could cause drying of the Mediterranean and the Middle East.
Troposphere
20 million tons of sulfate
Volcano
12 mi.
Sulfur dioxide and ash from volcanoes reduce solar radiation and cool the troposphere.
ARTIFICIAL TREE
Processed
Captured
Stored
CO2 is captured in the slats of the artificial tree with a sodium hydroxide liquid and sent to a processing facility to be converted into a gaseous form before it is stored.
Proposal: Use industrial-size artificial trees to filter 90,000 tons of carbon dioxide from the air each year. Each tree could filter 6.6 pounds of CO2 per second.
Problems: Separation, transportation, and disposal costs are high; leakage a risk to humans, ecosystems.
Slats
197 feet
CO2 captured from air
Pivots
Resulting sodium carbonate is dissolved and flushed through tree.
CO2 is then transported to processing center and stored underground.
Drawings are schematic

National Green Tribunal

Context

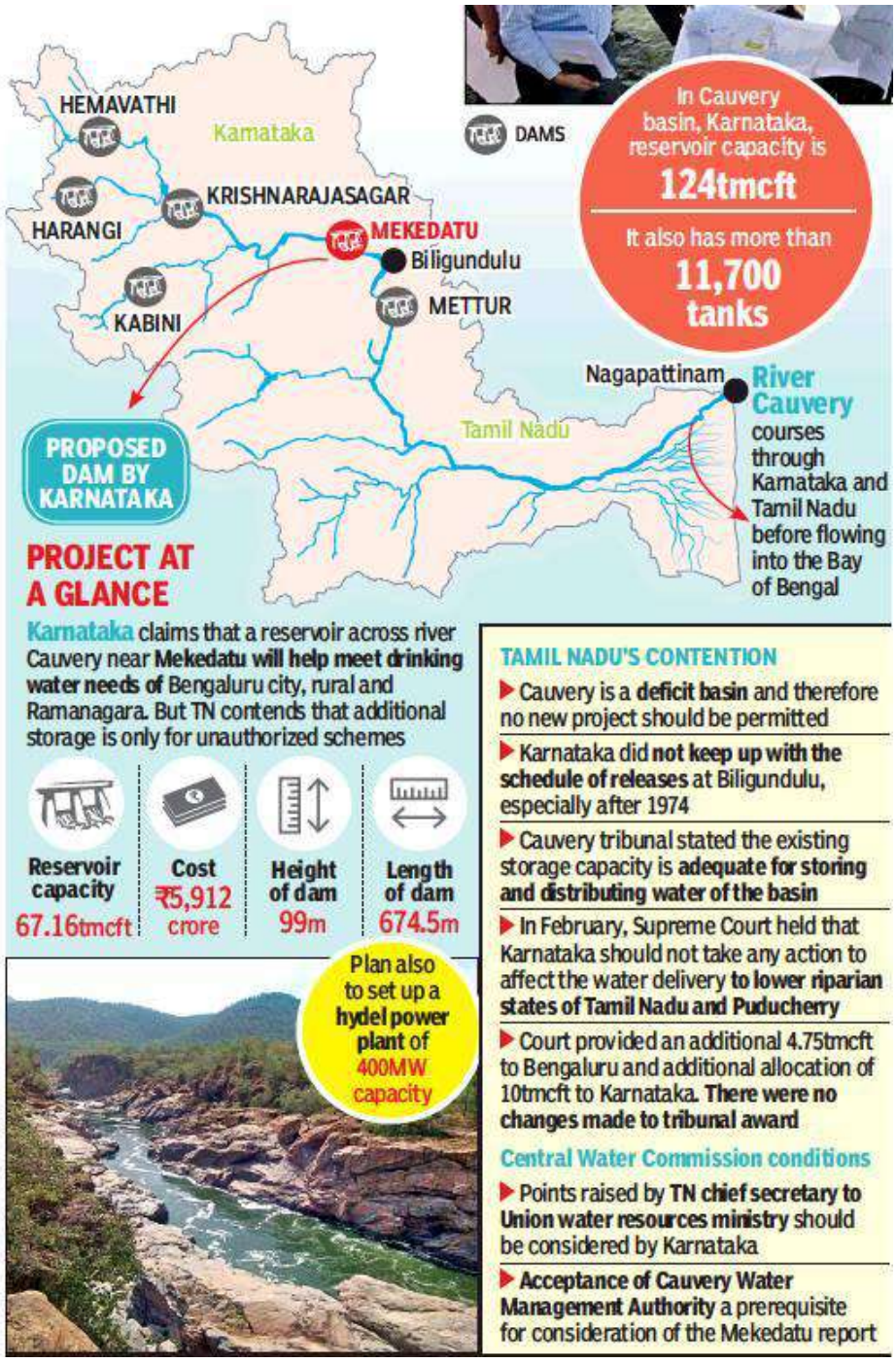
- The National Green Tribunal (NGT), has appointed a joint committee to look into allegations of unauthorised construction activity taking place in Mekedatu, where the Karnataka government had proposed to construct a dam across the Cauvery River.
- NGT has directed the panel that if the project is to be implemented without **conducting any environmental impact assessment study and without obtaining necessary clearance**, it will be considered as an unauthorized act affecting the environment.
- NGT also directed the joint committee to **assess the damage** caused to the environment in case of any construction made and **determine the compensation** payable by the respective authorities who are responsible.

Mekedatu dam Project

- The project **aims to store and provide 4.75 tmcft of drinking water to Bengaluru** and surrounding areas, apart from generating 400 MW of hydroelectricity at an estimated cost of Rs 9,000 crore.
- It is an extension of a protracted battle between **Karnataka and Tamil Nadu** states have waged over sharing the **Cauvery water**.

About NGT

- **The National Green Tribunal Act, 2010 is an** Act of the Parliament of India, which enables creation of a special tribunal to handle the expeditious disposal of the cases pertaining to environmental issues.
- **It draws inspiration from the India's** constitutional provision of (Constitution of India/Part III) Article 21 Protection of life and personal liberty**, which assures the citizens of India the right to a healthy environment. Powers**
- Power: **The NGT has the power to hear** all civil cases **relating to environmental issues and questions that are linked to the implementation of laws listed in Schedule I of the NGT Act. These include the following:**
    - The Water (Prevention and Control of Pollution) Act, 1974;
    - The Water (Prevention and Control of Pollution) Cess Act, 1977;
    - The Forest (Conservation) Act, 1980;
    - The Air (Prevention and Control of Pollution) Act, 1981;
    - The Environment (Protection) Act, 1986;
    - The Public Liability Insurance Act, 1991;
    - The Biological Diversity Act, 2002.


HEMAVATHI
Karnataka
HARANGI
KRISHNARAJASAGAR
MEKEDATU
Biligundulu
METTUR
KABINI
DAMS
In Cauvery basin, Karnataka, reservoir capacity is 124tmcft
It also has more than 11,700 tanks
Nagapattinam
River Cauvery courses through Karnataka and Tamil Nadu before flowing into the Bay of Bengal
Tamil Nadu
PROPOSED DAM BY KARNATAKA
PROJECT AT A GLANCE
Karnataka claims that a reservoir across river Cauvery near Mekedatu will help meet drinking water needs of Bengaluru city, rural and Ramanagara. But TN contends that additional storage is only for unauthorized schemes
Reservoir capacity 67.16tmcft
Cost ₹5,912 crore
Height of dam 99m
Length of dam 674.5m
Plan also to set up a hydel power plant of 400MW capacity
TAMIL NADU'S CONTENTION
Cauvery is a deficit basin and therefore no new project should be permitted
Karnataka did not keep up with the schedule of releases at Biligundulu, especially after 1974
Cauvery tribunal stated the existing storage capacity is adequate for storing and distributing water of the basin
In February, Supreme Court held that Karnataka should not take any action to affect the water delivery to lower riparian states of Tamil Nadu and Puducherry
Court provided an additional 4.75tmcft to Bengaluru and additional allocation of 10tmcft to Karnataka. There were no changes made to tribunal award
Central Water Commission conditions
Points raised by TN chief secretary to Union water resources ministry should be considered by Karnataka
Acceptance of Cauvery Water Management Authority a prerequisite for consideration of the Mekedatu report

- Importantly, the NGT has not been vested with powers to hear any matter relating to the Wildlife (Protection) Act, 1972, the Indian Forest Act, 1927 and various laws enacted by States relating to forests, tree preservation etc. Therefore, specific and substantial issues related to these laws cannot be raised before the NGT.
- Principles of Justice adopted by NGT: The NGT is not bound by the procedure laid down under the Code of Civil Procedure, 1908, but shall be guided by principles of natural justice. Further, NGT is also not bound by the rules of evidence as enshrined in the Indian Evidence Act, 1872.
- The Chairperson of the NGT is a retired Judge of the Supreme Court, Head Quartered in Delhi. Other Judicial members are retired Judges of High Courts. Each bench of the NGT will comprise of at least one Judicial Member and one Expert Member.

New spider cricket discovered from Chhattisgarh

Context

- The new subgenus is named Jayanti after Professor Jayant Biswas, one of the leading cave explorers in the country.
- Jayanti has become the twelfth subgenus, or species, of cricket identified under the genus Arachnomimus Saussure, 1897.
- Found in the Kurra caves of Chhattisgarh in April 2021 by a team of zoologists.
- Arachnomimus is the **genus name given to crickets that resembled spiders**.

Why is the discovery significant?

- Crickets are noticeable for their loud calls, especially at night. Male crickets produce this sound by rubbing their wings against each other to attract females.
- Interestingly, males of the new Jayanti subgenus cannot produce sound and their females don't have ears.
- The crickets were found on the walls of the Kurra caves, which don't have light inside. They may be **communicating by beating their abdomen or any other body part on the cave walls**.
- **Vibrational communication is one of the softest but fastest modes of signal transmission**.
- **Further studies on their skills of vibrational communication may help in designing hearing aids for human** which can capture quietest signals and amplify to an audible hearing range.

Sunderbans

Context

- Ripples from Cyclone Yaas and surging tides devastated the Sunderbans
- In the past three years, the Sunderbans has been battered by four tropical cyclones — Fani, Bulbul, Amphan and Yaas.

Sunderbans

- Sundarbans is a **mangrove area** in the delta formed by the confluence of the **Ganges, Brahmaputra and Meghna Rivers in the Bay of Bengal.**
- It comprises closed and open mangrove forests, land used for agricultural purpose, mudflats and barren land, and is intersected by multiple tidal streams and channels.
- Four protected areas in the Sundarbans are enlisted as **UNESCO World Heritage Sites**, viz. Sundarbans National Park, Sundarbans West, Sundarbans South and Sundarbans East Wildlife Sanctuaries.
- Despite these protections, the **Indian Sundarbans were considered endangered** in a 2020 assessment under the **IUCN Red List of Ecosystems framework.**

DEFENCE & SECURITY

Operation Samudra Setu II

Context

- In support of the nation's fight against Covid-19 and as part of operation 'Samudra Setu II', seven Indian Naval ships have been deployed for shipment of liquid medical oxygen-filled cryogenic containers and associated medical equipment from various countries.
- **Operation Samudra Setu** was launched last year by the Navy and around **4000 Indian citizens stranded in neighbouring countries, amidst COVID 19 outbreak, were successfully repatriated back to India.**

Karen and Kachin

Context

- Ethnic Karen guerrillas claims to capture Myanmar army base near border with Thailand.

The Karen and the Kachin

- The Karen and the Kachin are two of the **bigger minority groups**of Myanmar that have been seeking greater autonomy for decades, during which there have been periods of armed conflict punctuated by ceasefires.

Indian Coast Guard

Context

- National Security Advisor commissioned Indian Coast Guard (ICG) Offshore Patrol Vessel (OPV) **Sajag** through digital means and dedicated it to the nation for safeguarding the maritime interests.

OPV Sajag

- OPV Sajag is constructed by M/s Goa Shipyard Limited.

About Indian Coast Guard

- ICG is a **multifarious force**, undertaking concurrent operations and being the first responder for any developing situation at sea.
- Their personnel work in very diverse conditions and circumstances to safeguard the vast coastline.
- It undertakes diverse roles like **rescue operations during cyclones, marine pollution response and anti-narco operations.**
- ICG plays an important role for supporting the neighbouring countries in IoR.
- It plays critical role in **anti-smuggling and anti-narcotics, both nationally and internationally.**
- It has recently undertaken various **pollution response, firefighting and interdiction operations beyond IoR, when called upon by littoral countries.**
- ICG being the **4th largest in the world with** almost 160 ships and 62 aircraft.

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1. Consider the following statements regarding Elections:

1. All states in India have separate voter lists for Panchayat and assembly elections.
2. The State Election Commission prepares electoral rolls for local elections.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

2. Consider the following statements regarding NOTA:

1. It was introduced in the General Election for 16th Lok Sabha Elections of 2014.
2. It does not hold any electoral value.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

3. Consider the following statements regarding Government of National Capital Territory (GNCT) of Delhi (Amendment) Act, 2021:

1. It gives discretionary powers to the Lieutenant Governor even in matters where the Legislative Assembly of Delhi is empowered to make laws.
2. It gives the Lieutenant Governor the right to give opinion before implementation of the council of minister's decision.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

4. Consider the following statements regarding food chain:

1. Detritus food chain is the major conduit for energy flow in the aquatic ecosystem.
2. Grazing food chain is the major conduit for energy flow in the terrestrial ecosystem.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

5. Consider the following statements regarding Lonar Lake:

1. It is a saline lake which was created during the Pleistocene.
2. It has been notified as a National Geo-heritage Monument.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

6. Consider the following statements regarding Sri Guru Teg Bahadur Ji:

1. He was the last guru of 10 Gurus of Sikh Religion.
2. He was executed by Aurangzeb.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

7. Consider the following statements regarding Index of Industrial Production (IIP):

1. Electricity has maximum weightage in the index.
2. The IIP index is computed and published by the Chief Economic Advisor (CEA) of the government of India.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

8. Consider the following statements:

1. Harshacharita was written by Banabhatta.
2. Harshavardhana made successful conquests in Bangal and Deccan.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

9. Consider the following statements:

1. Ashoka's dhamma focused on worship of a god and sacrifices.
2. Megasthenes was an ambassador sent to the court of Chandragupta by the Greek ruler of West Asia.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

10. Consider the following statements about Indus Valley Civilisation:

1. The term Harappa means "Mount of the dead".
2. Kalibangan is the only city without a citadel.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

11. Consider the following statements regarding Xylophis deepaki:

1. It is a harmless snake which feeds on earthworms.
2. They are endemic to western ghats.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

12. Consider the following statements regarding Operation Samudra Setu-II:

1. It is related to excavation of Indians in foreign countries due to COVID 19.
2. Its focus area is pacific ocean.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

13. Consider the following statements regarding State Disaster Response Fund:

1. It has been constituted under Disaster Management Act, 2005
2. It is out of the purview of Comptroller and Auditor General of India (CAG).

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

14. Which of the following are the necessary conditions for the formation of a delta?

1. Presence of lake in the Path of river
2. Presence of deep sea at the end

Select the correct answer using the code given below:

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

15. Arrange the following category of iron ore in descending order based on their iron content:

1. Haematite
2. Limonite
3. Siderite

Choose the correct code:

a) 2, 1, 3 b) 1, 3, 2
c) 3, 1, 2 d) 1, 2, 3

16. Consider the following statements Production Linked Incentive Scheme:

1. It is a Centrally Sponsored Scheme.
2. It aims to log into the global supply chain.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

17. Consider the following statements Pox 186 galaxy:

1. It is 100 times larger than the Milky way galaxy.
2. It is in a 'blow away' state.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

18. Consider the following statements Asiatic lions:

1. It has been listed as 'Critically Endangered' in IUCN Red List.
2. It is presently found in Asian Subcontinent and West Asia.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

19. Consider the following statements with reference to the Gram Sabha:

1. The power regarding annulment of a decision of the Gram Sabha rests with the Gram Sabha only.
2. Functions performed by Gram Sabha are determined by the Governor of the State.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

20. Which of the following provisions are present in the 73rd Amendment Act, 1992?

1. Gram Sabha is the only permanent unit in the Panchayati Raj system.
2. Seats for SC- ST are reserved in membership as well as at chairperson level.

Choose the correct code:

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

21. Consider the following statements regarding Comptroller and Auditor General of India(CAG):

1. The salary, service conditions, leaves of absence, pension and age of retirement are determined by the Parliament of India.
2. CAG is eligible for reappointment.

Which of the statements are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

22. Consider the following statements Pradhan Mantri Mudra Yojana:
1. Loans under this scheme have a maximum cap of Rs 5 Lakh.
2. Loans under this scheme are collateral-free loans.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

23. Consider the following statements Purchasing Managers' Index (PMI):
1. If the PMI of the previous month is higher than the PMI of the current month, it represents expansion.
2. It covers only manufacturing.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

24. Consider the following statements:
1. Kushans were the first to issue coins with names and images of rulers.
2. Indo Greeks were the first to issue gold coins in the first century CE.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

25. Consider the following statements:
1. Prayaga Prashasti was composed in Sanskrit by Harishena.
2. Iron-tipped ploughshare was used to increase agricultural productivity in ancient India.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

26. Consider the following statements:
1. Girnar inscription mentions a natural lake called Sudarshan lake.
2. Shaka ruler Rudradaman taxed the public to get the lake repaired.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

27. Consider the following statements with reference to the Trade Related Intellectual Property Rights:
1. These rights are outlined in the Universal Declaration of Human Rights.
2. Importance of intellectual property was first recognized in the Paris Convention.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

28. Consider the following statements with reference to Kharif Season:
1. Crops are grown in october-november and harvested in april-june.
2. Barley and Mustard are grown under this season.

Which of the statements given above is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

29. Consider the following statements:
1. Headline inflation is measured using Wholesale Price Index (WPI).
2. Core inflation is calculated from a consumer price index minus the volatile food and energy components.

Which of the statements is/are correct:
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

30. Consider the following statements:
1. Pradhan Mantri Shram Yogi Maan-dhan is a voluntary contribution pension scheme in which contribution is made by the subscriber and matched by the Centre.
2. Pradhan Mantri Jeevan Jyoti Bima Yojana is completely funded by the Centre.

Which of the statements is/are correct?
a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

31. With regard to GeM portal, consider the following statements:
1. It offers both goods and services for procurement by the government.
2. It is run by the Ministry of Corporate affairs.

Which of the statements given above is/are correct?
a) 1 only b) 2 only

c) Both 1 & 2 d) Neither 1 nor 2

32. Consider the following statements regarding Thane Creek Flamingo Sanctuary:

1. It is recognized as an "Important Bird Area".
2. The creek has been formed due to seismic faults.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

33. Consider the following statements regarding 5G technology:

1. High band spectrum of 5G Technology has the maximum coverage.
2. It provides ultra high latency.

Which of the statements given above is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

34. Consider the following statements regarding Akash Missile:

1. It is an air to air missile developed by DRDO.
2. It has a range of 25 km.

Which of the statements is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

35. Consider the following statements regarding Nirbhay Missile:

1. It is India's first indigenous Long Range Subsonic Cruise Missile.
2. It has a range of 1000 km.

Which of the statements is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

36. Consider the following statements regarding NETRA:

1. It is an airborne early warning and control system for Indian Air Force.
2. It has been imported from Israel.

Which of the statements is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

37. Consider the following statements regarding Anamalai Tiger Reserve:

1. It is a protected area located in the Tamil Nadu.
2. Vairapattan is a tribal festival located in this area.

Which of the statements is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

38. Consider the following statements regarding Rabindranath Tagore:

1. He spoke at the World Parliament for Religions in 1929.
2. He won the Nobel Prize in Literature for his work on Gitanjali.

Which of the statements is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

39. Consider the following statements regarding Mucormycosis:

1. It spread through direct contact between people.
2. Toothache and loosening of the tooth is one of the symptoms of the disease.

Which of the statements is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

40. Consider the following statements regarding Alaknanada river:

1. It rises in the Gangotri glacier near Gaumukh.
2. It meets Bhagirathi at KarnaPrayag..

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

41. Consider the following statements regarding Indian Vulture:

1. IUCN Status of this bird is Endangered.
2. Diclofenac causes kidney failure in this bird.

Which of the statements is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

42. Consider the following statements regarding Model Insurance Villages:

1. NITI Aayog has come out with this concept.
2. Only LIC will be allowed to offer services under this scheme.

Which of the statements is/are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

43. Consider the following statements regarding Acute Encephalitis Syndrome:

1. It can affect the mental status of a person.
2. It is caused only by viral infection.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

44. Consider the following statements regarding Enzymes:

1. Pepsin breaks the proteins in pancreas.
2. Amylase breaks the starch in the mouth.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

45. Consider the following statements regarding Nipah Virus:

1. Nipah Virus can survive in the bat's body without causing disease.
2. Human to Human transmission is not possible.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

46. Consider the following statements regarding 3rd Arctic Science Ministerial (ASM3) platform:

1. The theme for this year is 'Knowledge for a Sustainable Arctic'.
2. It was jointly organised by Russia and Iceland.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

47. Consider the following statements regarding Pradhan Mantri Garib Kalyan Ann Yojana:

1. Its nodal Ministry is the Ministry of Finance.
2. It aims to provide additional 5 kg grains over the Public Distribution System (PDS).

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

48. Consider the following statements regarding Curative Petition:

1. It needs to be made within 3 months of the date judgement has been passed.
2. Judges who passed the original judgement are not included.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

49. Consider the following statements regarding Right to Education Act:

1. It allows for teachers' engagement in decadal census and elections.
2. No detention Policy has been removed from the Right to education act.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

50. Consider the following statements regarding Indian Renewable Energy Development Agency Ltd.:

1. It is under the administrative control of the Ministry of Power.
2. Hydroelectricity is out of purview of this agency.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

51. Consider the following statements regarding Global Methane Assessment Report:

1. It is released by the Climate and Clean Air Coalition and UNEP.
2. Methane is responsible for 30 percent of warming since pre-industrial times.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

52. Consider the following statements regarding Cabinet Mission:

1. Pethick Lawrence was Secretary of State for India during this mission.
2. It suggested dividing the provinces into 3 groups.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

53. Consider the following statements regarding Quit India Movement:

1. It was led younger leaders like Jayaprakash Narayan and Ram Manohar Lohia.

2. Massive communal violence was witnessed during this movement.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

54. Consider the following statements regarding Sovereign Gold Bonds scheme:

1. Bonds will be redeemed in cash on maturity.
2. Maximum limit of subscription for individuals is 1 kg.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

55. Consider the following statements regarding Article 311:

1. No government employee shall be dismissed or removed by an authority subordinate to the one that appointed him/her.
2. It is applicable to civil servants and defence personnel.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

56. Consider the following statements regarding Cash Reserve Ratio:

1. It is kept with the RBI.
2. Banks earn returns on money parked as CCR.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

57. Consider the following statements regarding Cyclone Tauktae:

1. It is a tropical cyclone named by Myanmar.
2. It has a clockwise rotation.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

58. Consider the following statements:

1. Consequent Rivers follow the general direction of the slope.
2. Trellis Drainage Pattern develops in a terrain which has uniform rock structure.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

59. Consider the following statements regarding laterite soil in india:

1. It is rich in lime and potash.
2. They can support cultivation of tea, coffee, and rubber.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

60. Consider the following statements regarding Tribal Dances:

1. Only women take part in Kaadar Nritham of kochi area.
2. Paniyar Kali is performed in west bengal.

Which of the above statements is / are correct?

a) 1 only b) 2 only
c) Both 1 & 2 d) Neither 1 nor 2

ANSWERS

1. b	16. b	31. a	46. a
2. c	17. b	32. c	47. c
3. c	18. a	33. d	48. d
4. d	19. a	34. b	49. c
5. c	20. c	35. c	50. b
6. b	21. a	36. a	51. c
7. d	22. b	37. c	52. c
8. a	23. d	38. c	53. a
9. b	24. d	39. b	54. a
10. d	25. c	40. d	55. a
11. c	26. a	41. b	56. b
12. d	27. c	42. d	57. a
13. a	28. d	43. a	58. a
14. d	29. b	44. b	59. b
15. d	30. a	45. a	60. a